MAY 12, 1945

Railway Age

Founded in 1856

THE LIBRARY OF
NGRESS
RIAL
GIFT

for LOWER truck MAINTENANCE..

..EQUALIZE BRAKE FORCES BALANCE TRUCKS..

Specify WINE BRAKE BALANCER

THE WINE
RAILWAY APPLIANCE CO.
TOLEDO, OHIO

AMCCW membership gives you an assurance like that of a famous trademark

WHEN you learn that a wheel manufacturer is a member of the Association of Manufacturers of Chilled Car Wheels, you can feel the kind of assurance that a famous trademark gives you when you make an important purchase.

Here is why. To retain good Association standing, every member manufacturer must adhere to a specific and carefully worked out code of wheel manufacturing practice. Chill block tests, chemical analyses, processing temperature checks, drop tests, thermal tests, rotundity tests and hardness tests — all these precautions are not mere recommendations but required conditions of membership.

These high metallurgical and manufacturing standards are designed to protect quality, to protect the *purchaser of quality,* to help our railroads in continuing their outstanding wartime achievements.

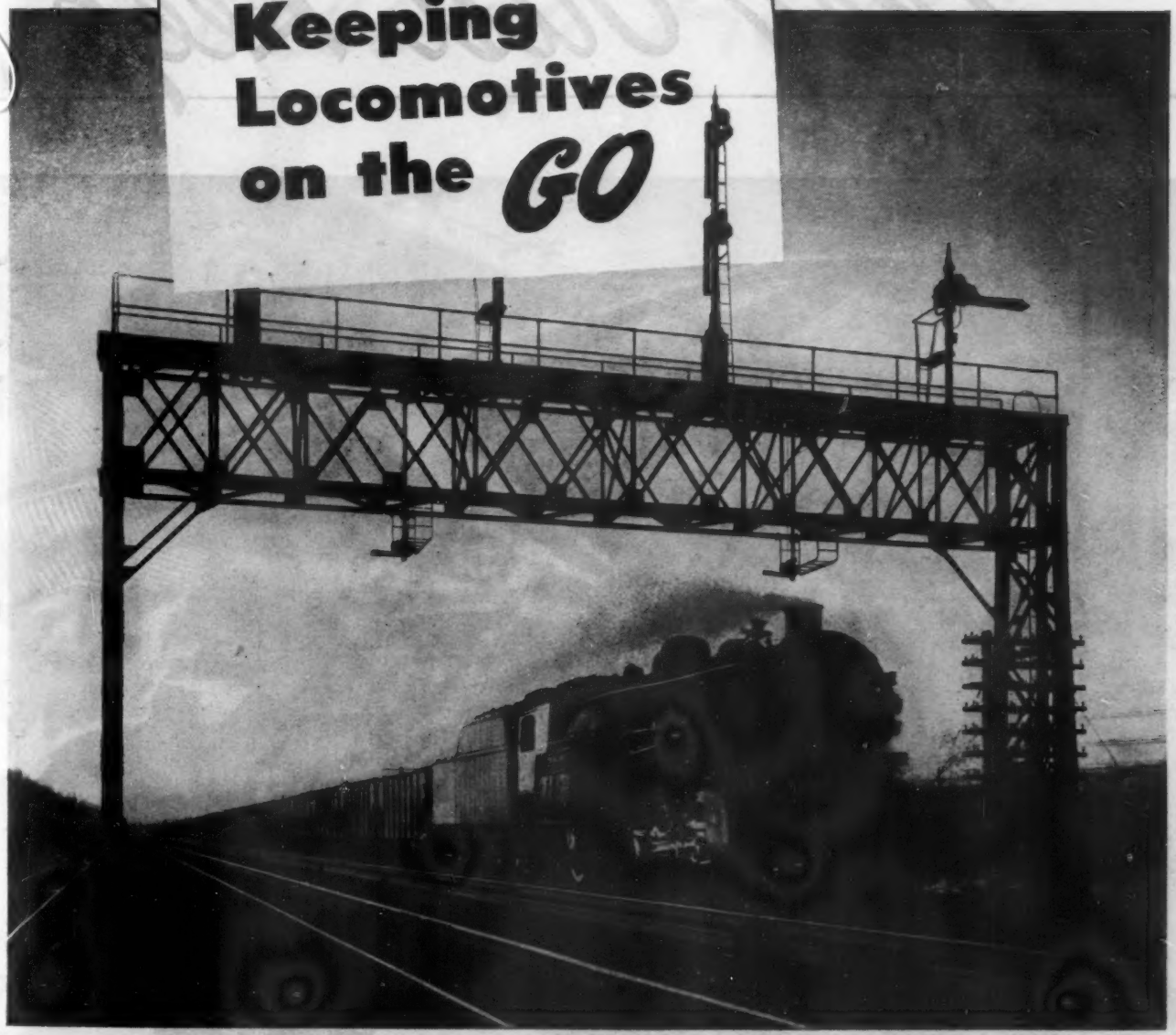
ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE, NEW YORK 17, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILL.

Organized To Achieve: Uniform Specifications — Uniform Inspection — Uniform Product

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 118, No. 19.

Keeping Locomotives on the *GO*



It takes a superior grade of firebox steel to keep locomotives on the go today. For most engines are pulling heavier loads, and are on the job many more hours than ever before. Firing is naturally severe, and the resulting thermal stresses put a grave strain on firebox steel of ordinary grades.

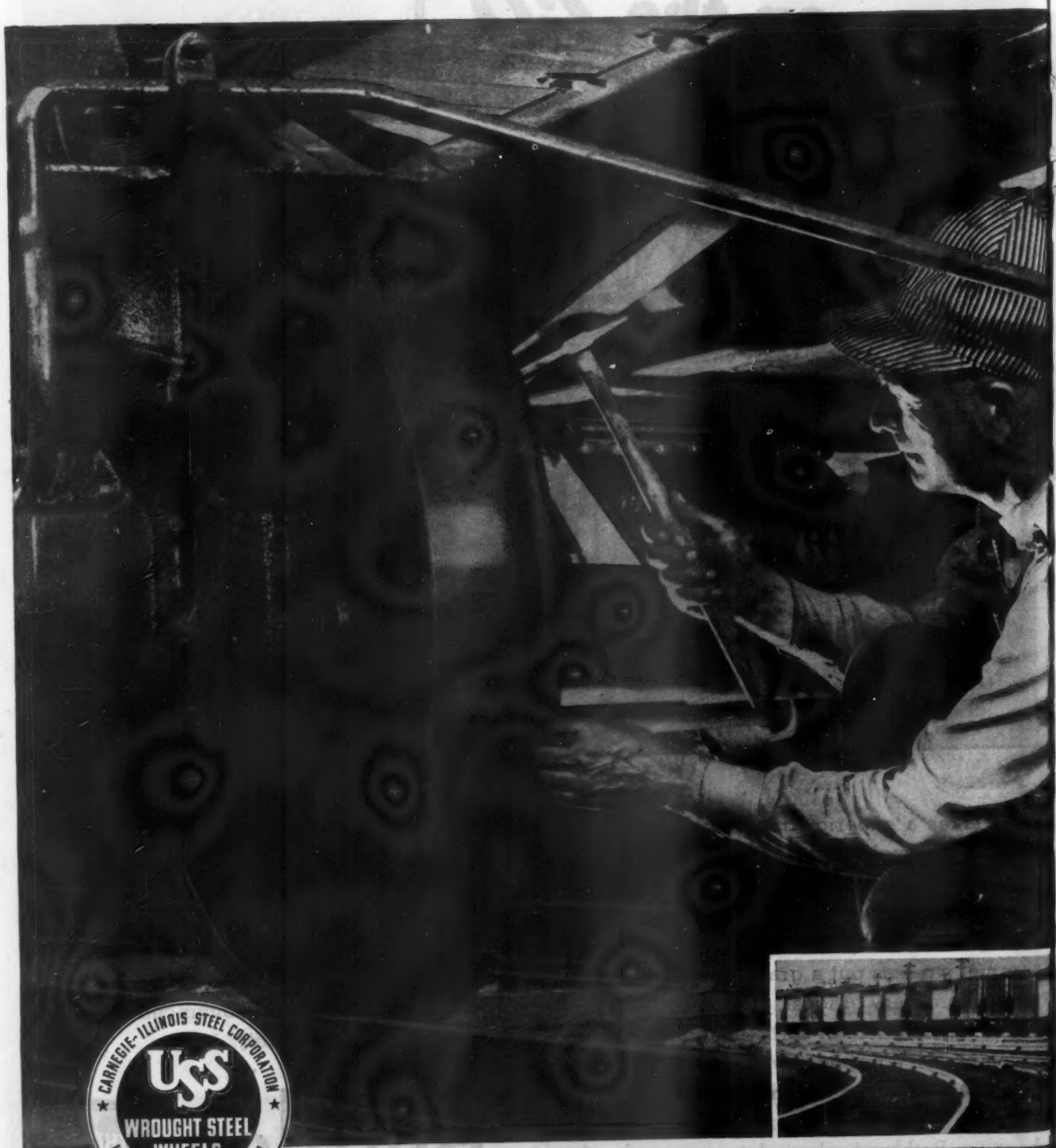
But on more than forty leading railroads locomotives equipped with Bethloc firebox plates are meeting the demands of wartime haulage without firebox trouble. This is because Bethloc firebox plates are made of a special, low-carbon steel which is tough and ductile, and greatly resistant to the fatigue stresses caused by vibration and sudden variations in temperature. Bethloc firebox plates have a uniform grain structure, and are well within railroad limits for elongation, elasticity and strength.

Use Bethloc firebox plates in your new locomotives, and in locomotives undergoing repair. You'll soon be convinced of their stamina and dependability.

Bethloc BETHLEHEM STEEL

FIREBOX PLATES

They Just Keep



UNITED

Rolling Along...

U·S·S One-Wear Wrought Steel Wheels give better service with greater safety at lower cost

THE abnormally heavy loads which have been thrown on the nation's railroads during wartime have been a severe test of the qualities of U·S·S One-Wear Wrought Steel Wheels. The record of the nearly 2,000,000 One-Wear Wrought Steel Wheels now in service merits close attention from managers who must deal with the problems of safety, service and cost of rolling stock.

Under 50/55 ton service, One-Wear Wrought Steel Wheels have averaged 200,000 miles. Under 70 ton service, 160,000 miles. Many wheels have topped 300,000 miles. Some have passed the 400,000 mile mark. On the basis of cost per thousand miles, U·S·S One-Wear Wrought Steel Wheels average substantially less than the cost of freight car wheels of other materials.

The record of the One-Wear Wrought Steel Wheels now in use reveals a high safety factor, too. Wherever these long-lasting wheels have been adopted, derailments and delays due to wheel failure have been sharply reduced. That's because they can endure heavy brake action and impact at high speeds.

This ability of One-Wear Wrought Steel Wheels to last long under tough operating conditions adds thousands of mile-hours to a freight car's earning power before it must go to the repair track. And there is a considerable saving in time and money because wheels need be changed less frequently.

If you want your stock to keep on rolling along, not only now, under difficult wartime conditions, but also under the strenuous service of postwar competition, change over to U·S·S One-Wear Wrought Steel Wheels.

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh and Chicago

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Export Company, New York

STATES STEEL

What *your freight agents*

QUIET AROUND OFFICES

Here's what the manager of one large industrial plant has to say—"the noise of steamers working beside our buildings distracted our office workers and interrupted important conferences. The diesel-electrics work unnoticed."

FAST, PROMPT SERVICE

Switching service can be given at the exact time it's requested because diesel-electrics are available 90 to 95 per cent of the time. Shippers like it because finished products can go to market promptly and raw materials arrive in time to keep production rolling.

SAFE IN BUILDINGS

At new-type industrial plants where trackage runs through buildings, diesel-electrics present no fire hazard. They can enter buildings safely, pick up and drop cars at the exact points specified by the plant.

Alco GE

AMERICAN LOCOMOTIVE

need to attract new revenue

ALCO-G.E. diesel-electrics combine revenue-attracting features with operating savings of as much as 38%

When your freight agents have the advantages of diesel-electric switching as a sales attraction, their opportunities for building new revenue and holding present revenue increase enormously. Diesel-electrics are clean, quiet, and safe; they are available at least 90 per cent of the time to meet the shipping and delivery schedules of industrial plants.

To make this revenue profitable and to obtain a high rate of return on their investment in diesel-electrics, the majority of railroads are choosing Alco-G.E. units. Their sturdy construction and experience-proved design insure maintenance and fuel economies, and a high degree of "use-ability." Alco-G.E. owners report:

"—our six-year-old Alco-G.E. locomotives are averaging 5.1 cents per locomotive-hour for maintenance."

"—enginehouse expense has been cut 30 per cent since our diesel-electrics replaced steamers."

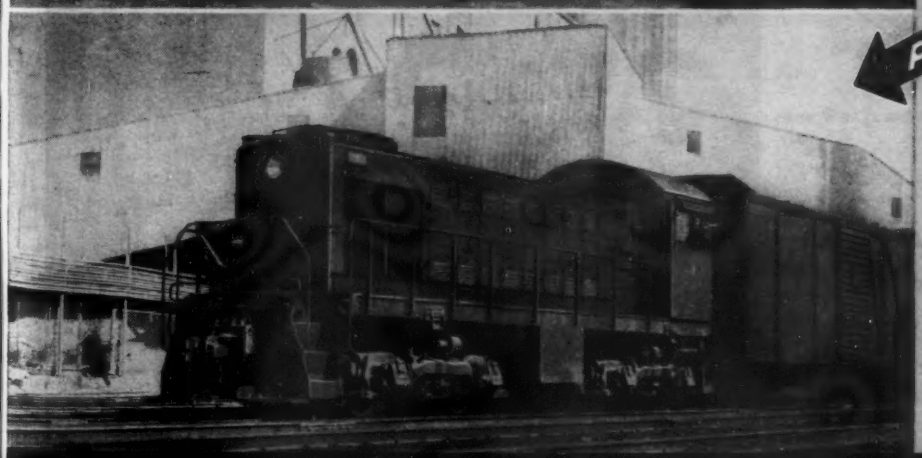
"—they are producing a 38 per-cent saving in operating costs through their low maintenance requirements and fuel economies."

"—their only out-of-service time has been eight hours a month for servicing and inspection."

This particular advantage of Alco-G.E. diesel-electrics —the ability to convert a larger share of gross revenue into net profit through operating economies—can go to work for you immediately. The services of our engineers are available for a motive-power survey, and their recommendations will be unbiased because we build all three types of motive power—diesel-electric, electric, and steam.

CAREFUL HANDLING

The electric drive of diesel-electrics insures a smooth gentle application of power that avoids sharp impacts when coupling and starting up. Thus, shock-damage to cars and lading is almost negligible.



PLANT CLEANLINESS

Shippers take pride in the appearance of their buildings, particularly when they are situated along railroad right-of-ways where they can be viewed by thousands of travelers. The absence of soot and cinders when diesel-electrics are used makes plant maintenance easier.

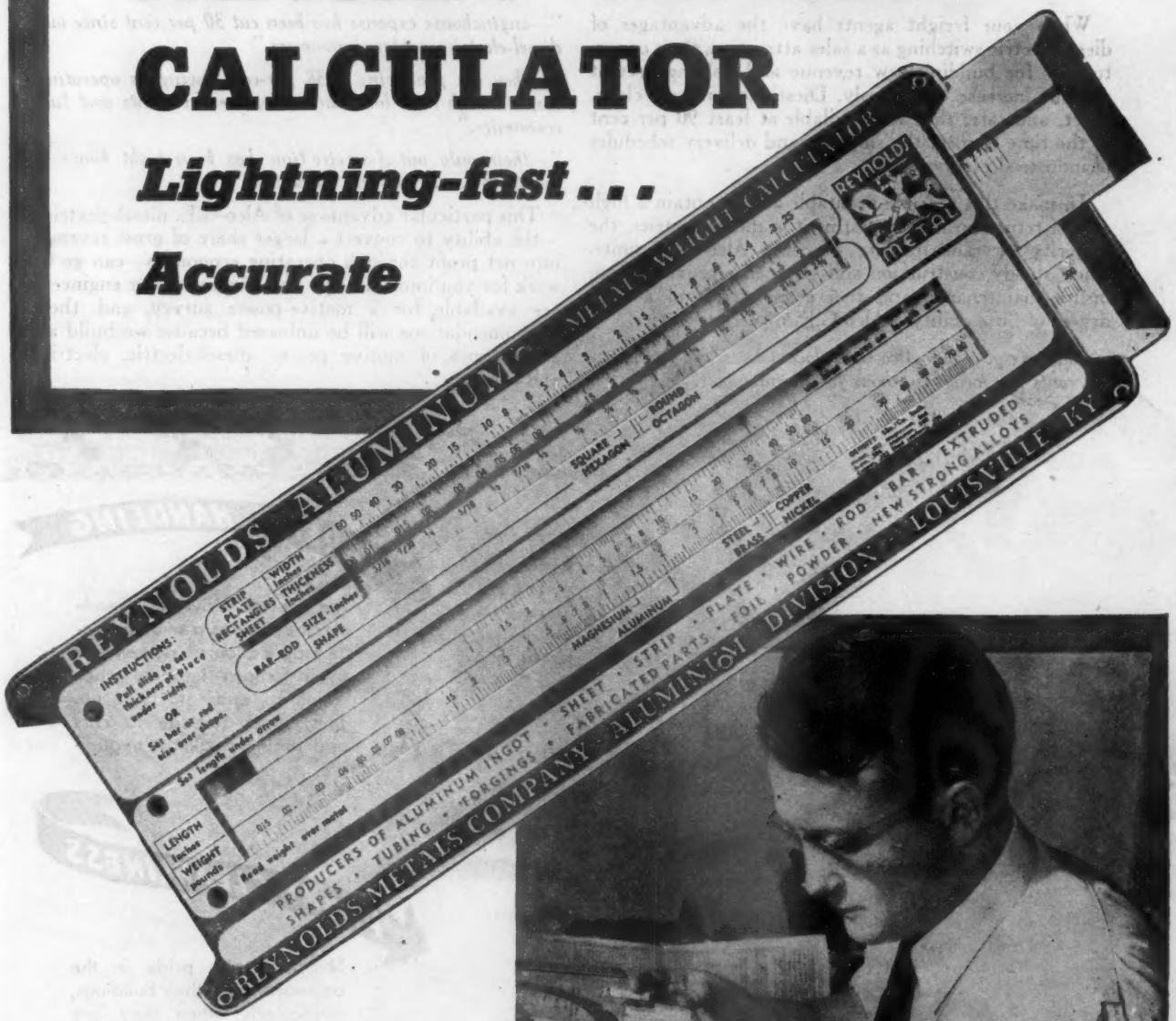
and GENERAL ELECTRIC

BUY WAR BONDS

NEW METALS WEIGHT CALCULATOR

Lightning-fast . . .

Accurate


REYNOLDS ALUMINUM
METALS WEIGHT CALCULATOR
REYNOLDS metal
INSTRUCTIONS:
Pull slide to set thickness or piece under width
OR
Set bar or rod size over shape.
Set length under arrow
Read weight over metal
LENGTH inches
WEIGHT pounds
STRIP PLATE RECTANGLES SHEET
WIDTH inches
THICKNESS inches
BAR-ROD
SIZE-inches
SHAPE
SQUARE HEXAGON
ROUND OCTAGON
STEEL BRASS
COPPER NICKEL
MAGNESIUM ALUMINUM
PRODUCERS OF ALUMINUM INGOT • SHEET • STRIP • PLATE • WIRE • ROD • BAR • EXTRUDED SHAPES • TUBING • FORGINGS • FABRICATED PARTS • FOIL • POWDER • NEW STRONG ALLOYS
REYNOLDS METALS COMPANY ALUMINUM DIVISION LOUISVILLE KY

A REAL TIME-SAVER

Engineers report that, besides facilitating absolute accuracy, the Reynolds *Metals Weight Calculator* saves up to 90% of the time ordinarily required to consult tables and make calculations.

REYNOLDS METALS

Yours...with the compliments of
REYNOLDS ALUMINUM

Here is one of the handiest calculating devices ever developed.

All the answers INSTANTLY. Everyone who works with metals will find this instrument invaluable.

It does the work for you, saves up to 90% of the time and effort on weight calculation. All you need to do is make the settings—then read the results. Serves equally well with aluminum, steel, brass, copper, magnesium, and nickel.

The Reynolds *Metals Weight Calculator* is a convenient, durable, vestpocket-sized instrument, measuring only 3″x8¾″. With a flip of the finger, weights are calculated from cross-sectional dimensions and length as accurately as from published tables of theoretical weights. It can also be used to determine lengths from cross-sectional dimensions and weight.

Scales included are sheet, strip and plate; round wire and rod; square, hexagonal, octagonal and rectangular bar; tubing; and sheet circles. Range of instrument—from .0006 lbs. to 3000 lbs.—from an infinitesimal-sized piece of metal to a giant bar.

If you work with metals, you will find this Reynolds *Metals Weight Calculator* very helpful. Mailed post-free upon request, in a protective wrapping. Reynolds Metals Company, Aluminum Division, Louisville, Kentucky.

Our supply is limited; so please fill in and *MAIL TODAY*

Reynolds Metals Company, Aluminum Division
2530 South Third Street, Louisville, Kentucky

Please send me, without charge, a Reynolds *Metals Weight Calculator*

Name_____ Title_____

Company_____

Street_____

City_____ Zone_____ State_____

then he said to himself

"Phooey on every good thing"

FEW men are more widely known, and more genuinely detested, than Fuehrer Vidkun Quisling.

. . . and yet few are his orations by which to measure him.

Recently, however, as the Church gained ascendency in Norway, he resorted to a three-word outburst which pictures his double-cross mentality to a T. Says he:

"Religion is outdated."

Well he knows in his stony heart and warped soul that the advance of religion is something that will undo him

. . . so he ridicules it rather than accepts it.

Since when has he ever TRIED religion?

Many men are all too prone to deride that which they do not know *from first-hand expe-rience*

. . . when it is only from first-hand experiences that faith is developed

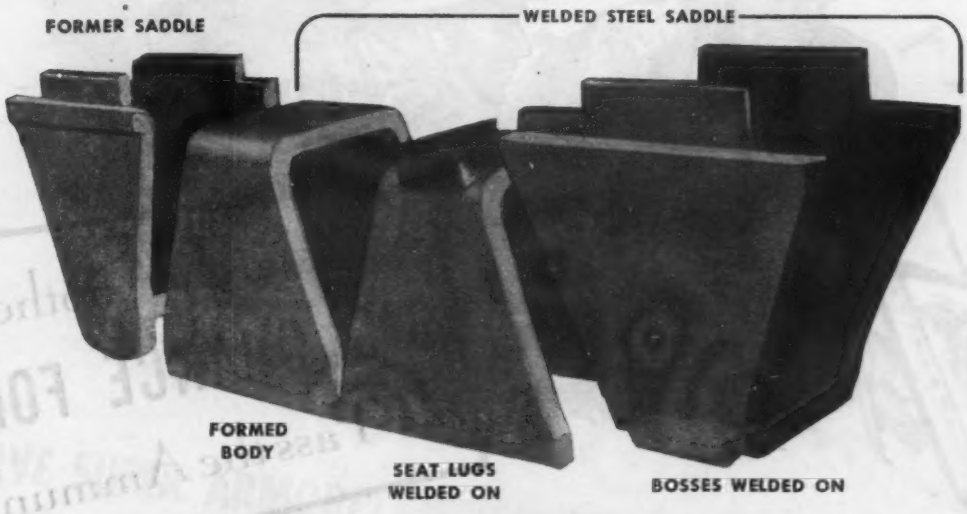
. . . and that goes for commercial faith as well.

"Outdated" . . . he cries

Look, Vidkun, OUTDATING occurs only when men take recourse to

A BETTER WAY

Such as the welded design of railroad parts. For example:



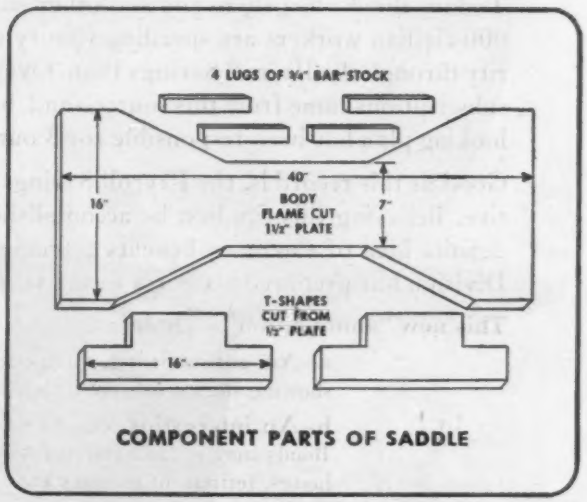
HOW TO MAKE A BETTER SPRING SADDLE

MANY railroads like this one in the Mid-West are replacing broken parts of conventional construction with long-lived welded steel, fabricating them right in their maintenance shops.

The spring saddle shown is an example. The same principle applies to more complicated parts such as the weld-fabricated locomotive cylinder shown below.

Lincoln Railroad Welding Engineers will gladly guide you in changing over your parts to welded steel for longer life and lower cost.

Welded steel cylinder for mountain type locomotive.



COMPONENT PARTS OF SADDLE

THE LINCOLN ELECTRIC COMPANY • CLEVELAND 1, OHIO

THE LINCOLN ELECTRIC RAILWAY SALES CO. • *Railroad Representative* • CLEVELAND 13, OHIO

America's greatest natural **recourse**

ARC WELDING

TO COMPANY PRESIDENTS:

Here's Another BIG CHANCE FOR YOU to "Pass the Ammunition!"

Today—thanks largely to you and other industrial executives—22,000,000 civilian workers are speeding victory and achieving postwar security through the Payroll Savings Plan. Over 60% of the 6th War Loan subscriptions came from this source—and, between drives, this forward-looking plan has been responsible for 3 out of 4 War Bond sales!

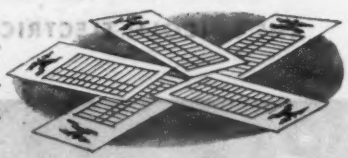
Good as this record is, the Payroll Savings Plan can be still more effective. Believing this can best be accomplished by giving Bond buyers a definite idea of the many benefits accruing to them, the War Finance Division has prepared a variety of active aids for employee education.

This new "ammunition" includes:

a—An entertaining, swift-paced moving picture, graphically showing the importance of buying—and holding—War Bonds.

b—An interesting, easy-to-read booklet, explaining how War Bonds may be accumulated to provide education for children, homes, retirement incomes, etc.

c—Attractive, handy War Bond envelopes, enabling Bond holders to note each separate purchase—and the specific purpose for which each Bond or group of Bonds was bought.



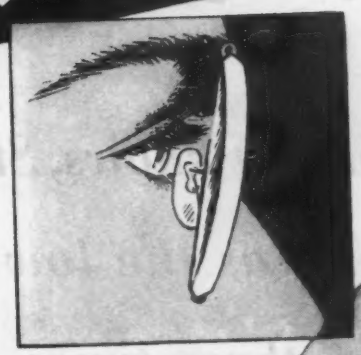
Passing this particular ammunition requires that you reappraise your own company's Payroll Savings Plan. Have your own War Bond Chairman contact the local War Finance Committee—today! They will welcome the chance to discuss this new program with you.

The Treasury Department acknowledges with appreciation the publication of this message by

RAILWAY AGE

★ *This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council*

The deep curve of the lens gives over twice the impact resistance of regular safety lenses. Workers' eyes are safer.



The curved shape of the lens permits closer fitting to the eyes for maximum protection, yet gives ample clearance for long lashes.

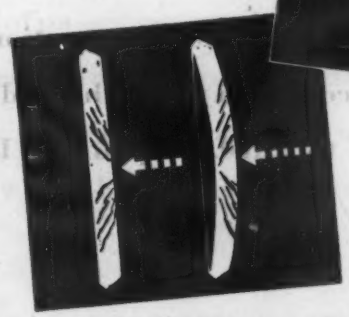
AO 6-CURVE SUPER ARMORPLATE LENSES

Save More Eyes...More Dollars

All your workers can enjoy the benefits of the lens that provides more than twice the resistance of regular protection lenses . . . the more certain deflection of flying particles . . . the tendency of the glass fragments to be wedged out and away from the eyes if the lens is fractured by an irresistible blow . . . the clear, normal, comfortable vision.

With all these advantages — your eye-protection costs will be lowered and company profits more secure. Remember — eyes are expensive targets — protect them with 6-Curve Super Armorplate lenses. Available in clear or calobar.

The curve of the lens aids in deflecting particles. Many blows that might fracture regular safety lenses are deflected by 6-Curve Super Armorplate Lens.



Glass fragments tend to be wedged away from the worker's eye if lens is fractured by an irresistible blow. Workers' eyes are safe.

American Optical

COMPANY

SOUTHBRIDGE, MASSACHUSETTS

HOW STRONG

As every metallurgist knows, Stainless Steel is twice as strong as the low alloy steels such as Cor-Ten, three times as strong as carbon steel. It is the strongest known metal suitable for structural purposes.

It is obvious, therefore, that Budd—the only car builder using Stainless Steel in the stressed members of passenger cars—builds extra strength into each car. And that strength is enhanced by the Budd-type of construction, by advanced methods of forming and welding, and by extraordinary reinforcement at points of stress. These are undeniable facts.

But that extra strength costs extra money and it is sometimes asked if it is worth the price. Why should Budd offer a car which so far exceeds the minimum strength requirements of the A.A.R. and exceeds as well the specifications of many railroads—with an underframe construction, for instance, which will withstand compression to 2,180,000 pounds. Is it good

SHOULD A RAILWAY CAR BE

practice to make the larger initial investment for extra strength, when "strong enough" might do?

There are sound business answers, but the most important of all is that "safety should have no price."

The A.A.R. has performed an invaluable service in establishing strength standards for certain important elements of passenger car structures. But, of course, these are minimum requirements. Nobody knows how strong a railway car should be—when safety is the paramount consideration. Our only guide is the limits of the finest material made—the stronger the better.

We shall continue to build cars as strong and safe as we know how to build them. For we feel that we share the responsibility of the railroads—a responsibility they have met with conspicuous success because they have put it first—to utilize every known advance in material and technique in order to provide ever safer and safer transportation for the travelling public.

EDWARD G. BUDD MANUFACTURING COMPANY

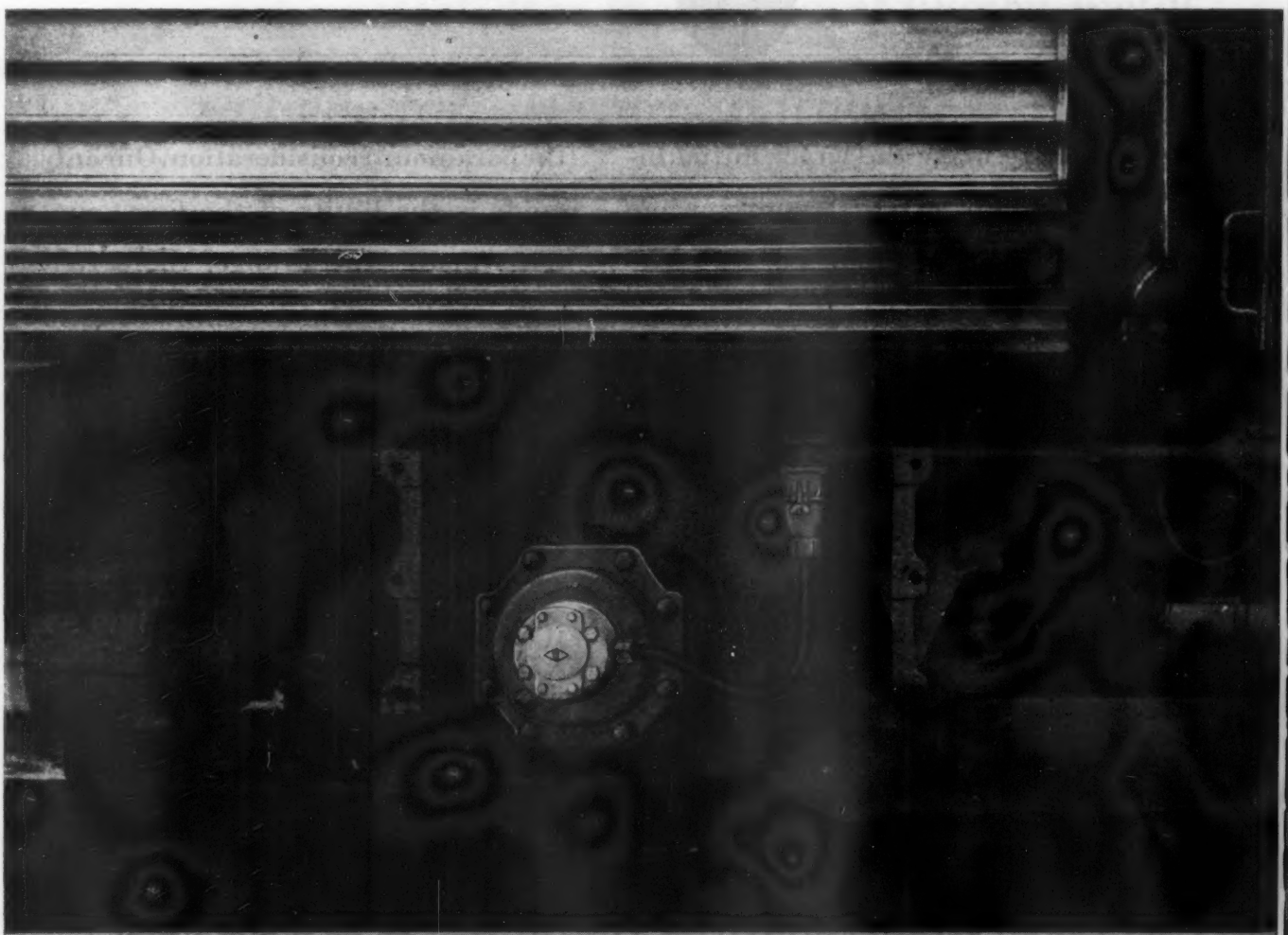
Budd

PHILADELPHIA • DETROIT • NEW YORK • CHICAGO • ST. LOUIS • WASHINGTON • SAN FRANCISCO

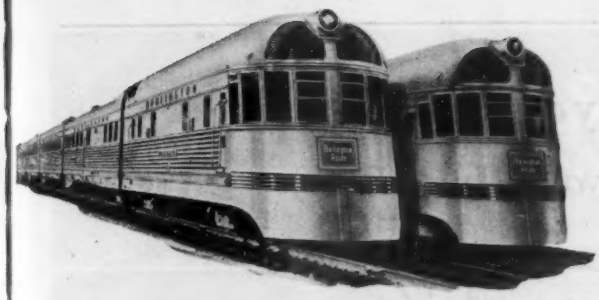
MORE THAN TWO MILLION

"Zephyr" Miles

OF WHEEL SLIDE PROTECTION WITH AMERICAN BRAKE SHOE CONTROLLERS

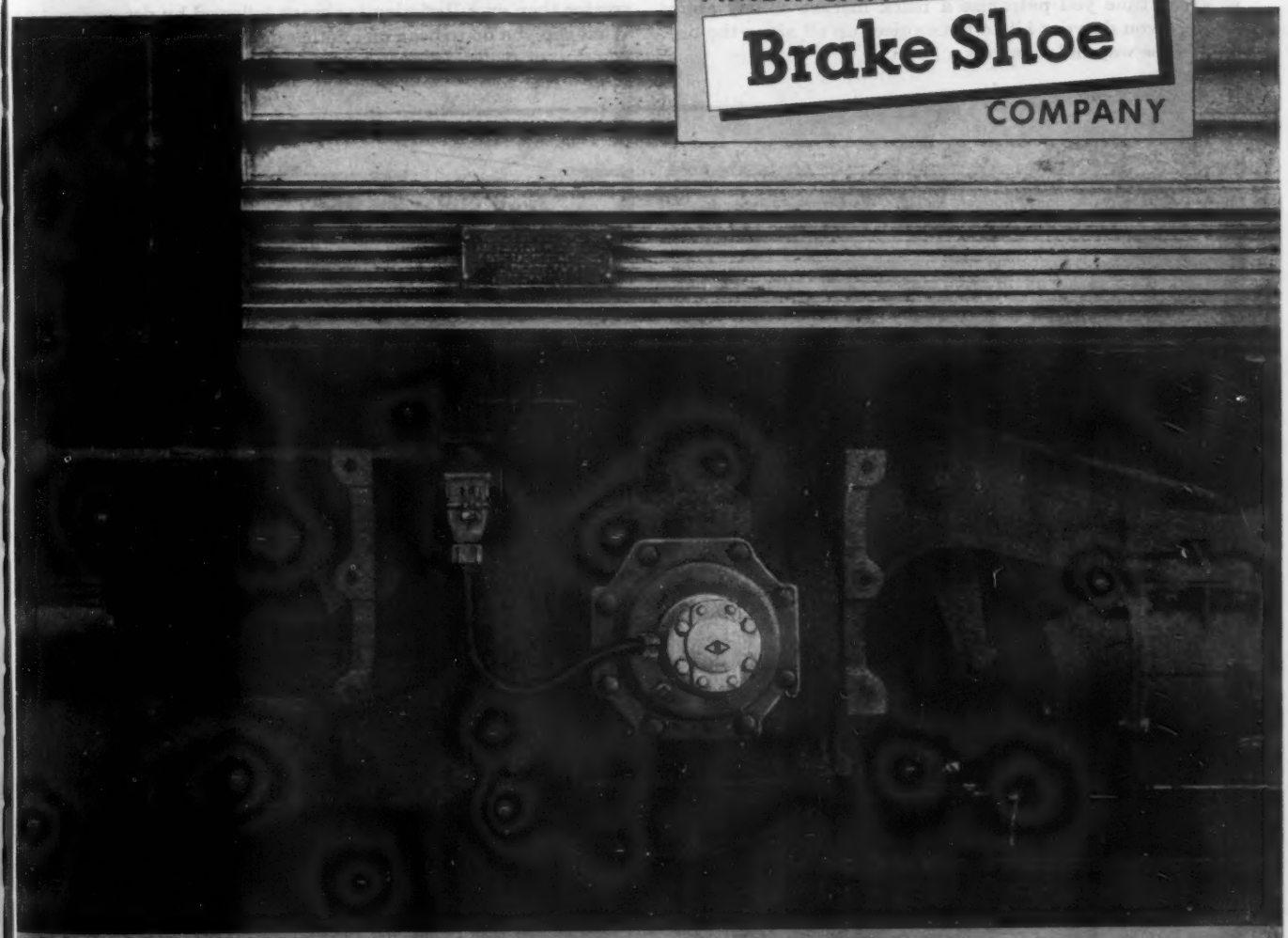


BRAKE SHOE AND CASTINGS DIVISION



American Brake Shoe Controllers have been protecting the Burlington's famous "Twin City Zephyrs" against slid flats for more than two million train miles. In service between Chicago and St. Paul-Minneapolis, both Zephyrs have been completely equipped since 1941 with American Brake Shoe Controllers—an important reason for the availability record of this equipment. The American Brake Shoe Controller detects wheel slippage, instantly corrects it, and restores full brake as soon as slippage is eliminated. It may be accurately tested when train is moving or standing.

AMERICAN
Brake Shoe
COMPANY



230 PARK AVENUE, NEW YORK 17, N. Y.

What you do with your money can wreck you (*and your Uncle Sam*)

BUY, BUY, BUY! Foolish people are doing it, *over*doing it. But sensible folks know that with every needless purchase—or every time you patronize a black market or buy above ceiling—you do your bit to force prices up all along the line. That's the way inflation gets a boost.

IT CAN HAPPEN HERE—again! Today, with fewer goods in the stores while incomes are high, the danger of inflation is greater than ever. Inflation is always followed by depression. What can you do to head off another depression? Buy nothing you do not really—*really*—have to have . . . today.

SAVE, SAVE, SAVE! That's the way to make America good for the boys to come home to. Pay up debts, put money in life insurance, savings bank, War Bonds. Every cent you save now helps to keep prices down—and when the war is won you'll have use for that nest egg you've laid away.

A HOME OF YOUR OWN, a better farm, a real vacation, something to retire on—these are things worth saving for. Store up your money now while prices are high. There's a time to splurge and a time to save: today, while money's coming in, is a good time—the *right* and patriotic time—to SAVE!

4 THINGS TO DO

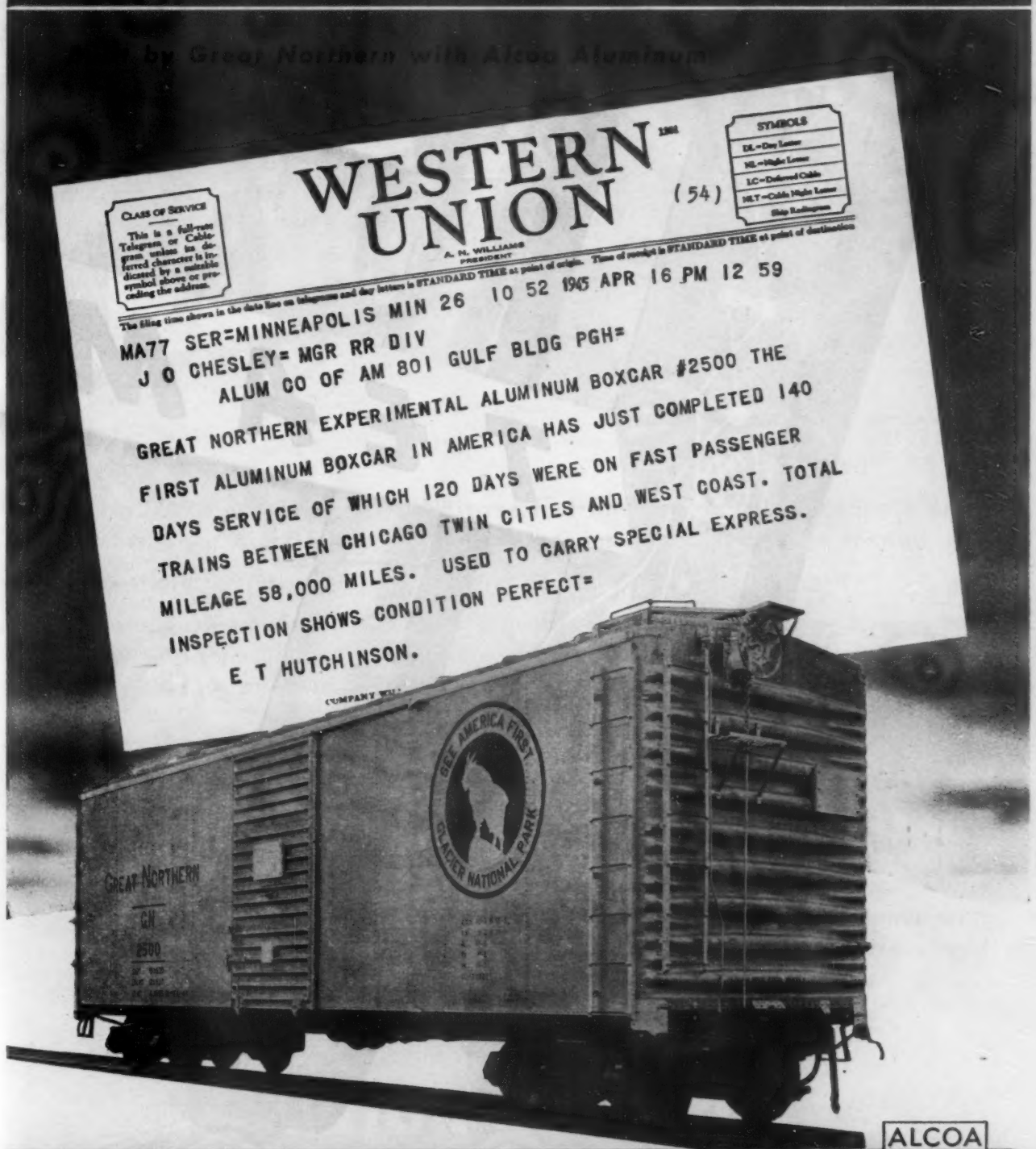
to keep prices down and help avoid another depression

1. Buy only what you really need.
2. When you buy, pay no more than ceiling prices. Pay your ration points in full.
3. Keep your *own* prices down. Don't take advantage of war conditions to ask more for your labor, your services, or the goods you sell.
4. *Save.* Buy and hold all the War Bonds you can—to help pay for the war, protect *your own* future! Keep up your insurance.

A United States War message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by this magazine in cooperation with the Magazine Publishers of America

LATEST REPORT

ON AMERICA'S FIRST ALUMINUM BOXCAR


WESTERN UNION
(54)
CLASS OF SERVICE
SYMBOLS
A. N. WILLIAMS
PRESIDENT
MA77 SER=MINNEAPOLIS MIN 26 10 52 1945 APR 16 PM 12 59
J O CHESLEY= MGR RR DIV
ALUM CO OF AM 801 GULF BLDG PGH=
GREAT NORTHERN EXPERIMENTAL ALUMINUM BOXCAR #2500 THE
FIRST ALUMINUM BOXCAR IN AMERICA HAS JUST COMPLETED 140
DAYS SERVICE OF WHICH 120 DAYS WERE ON FAST PASSENGER
TRAINS BETWEEN CHICAGO TWIN CITIES AND WEST COAST. TOTAL
MILEAGE 58,000 MILES. USED TO CARRY SPECIAL EXPRESS.
INSPECTION SHOWS CONDITION PERFECT=
E T HUTCHINSON.
SEE AMERICA FIRST
GLACIER NATIONAL PARK
GREAT NORTHERN
GN
2500

ALCOA ALUMINUM

ALCOA

COPYRIGHT 1945

MATES!

INSUTAPE and WOVENSTONE save fuel and eliminate maintenance problems. Their high insulating efficiency means greater passenger comfort, too.

Here are the reasons:

Unarco steam-pipe insulations prevent pipes from freezing—keep steam coursing through the train at peak-efficiency; will not shake down—always remain snug and firm against the pipe—can be reapplied over and over again.

. . . And here's the proof:

Operating tests prove that Insutape eliminates 64% of bare pipe heat losses. Savings have been proved under still air conditions, but are much greater under wind velocity conditions found in the actual operation of rolling stock.

Wovenstone has proved its efficiency in 12 years of "active service." Many mechanical men can point with pride to rolling stock that is still equipped with its original Wovenstone—rolling stock placed in service over 12 years ago!

UNION ASBESTOS

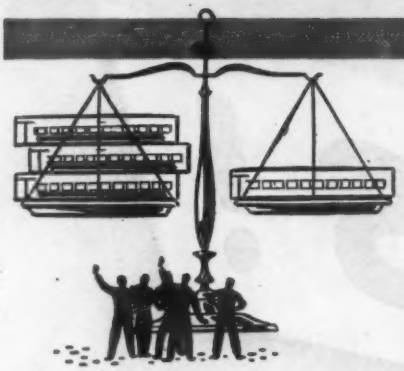
MEANS PROGRESS IN INSULATION

AND RUBBER CO.

310 S. MICHIGAN AVE. CHICAGO 4, ILLINOIS

NEW YORK SAN FRANCISCO

HOW DOES BUDD GET SUCH STRENGTH



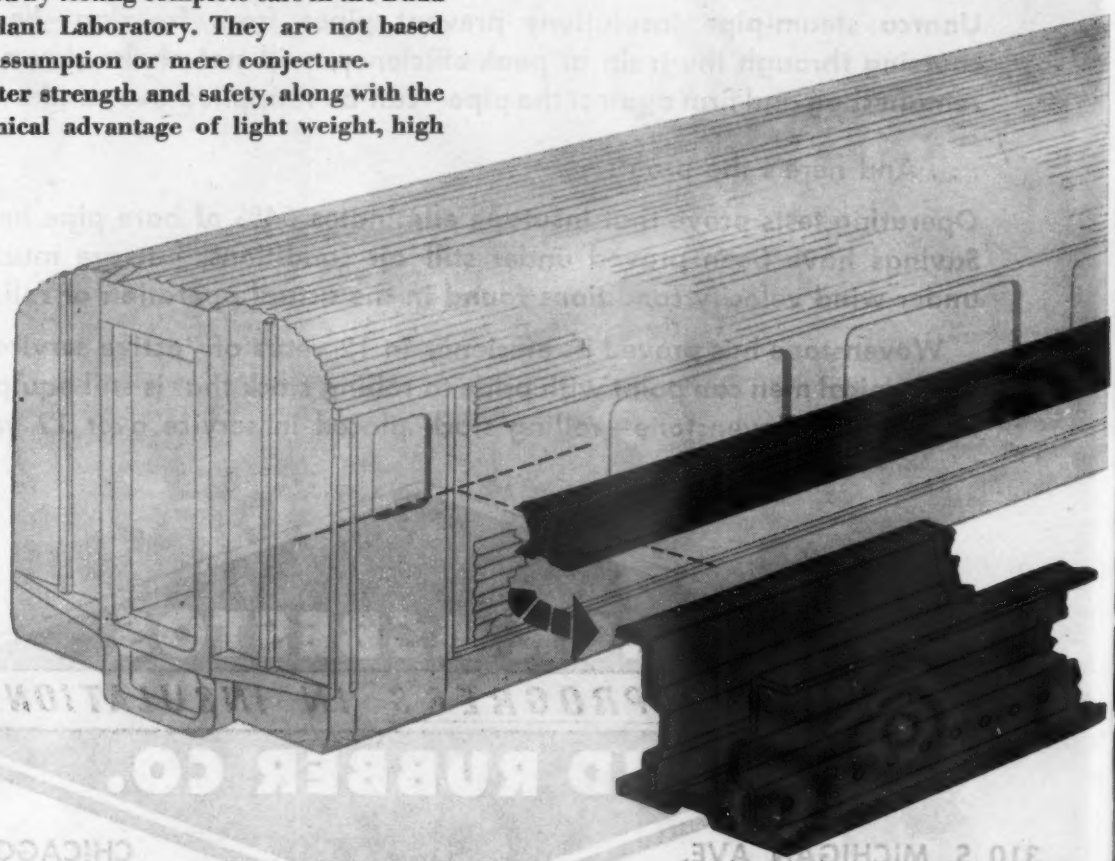
Stainless steel is twice as strong as low alloy steel and three times as strong as ordinary structural steel.

This means that a car structure, properly designed, using stainless steel, can be made twice as strong as a car structure of the same weight using "low alloy" steels. In other words a car structure of Cor-Ten, the same strength as one of stainless steel, would be twice as heavy.

VALUE—Tested and Proved

Calculations are no more exact than the premise upon which they are based and valueless if they prove unreliable in future service. Budd calculations are based upon results obtained by testing complete cars in the Budd Test Plant Laboratory. They are not based upon assumption or mere conjecture.

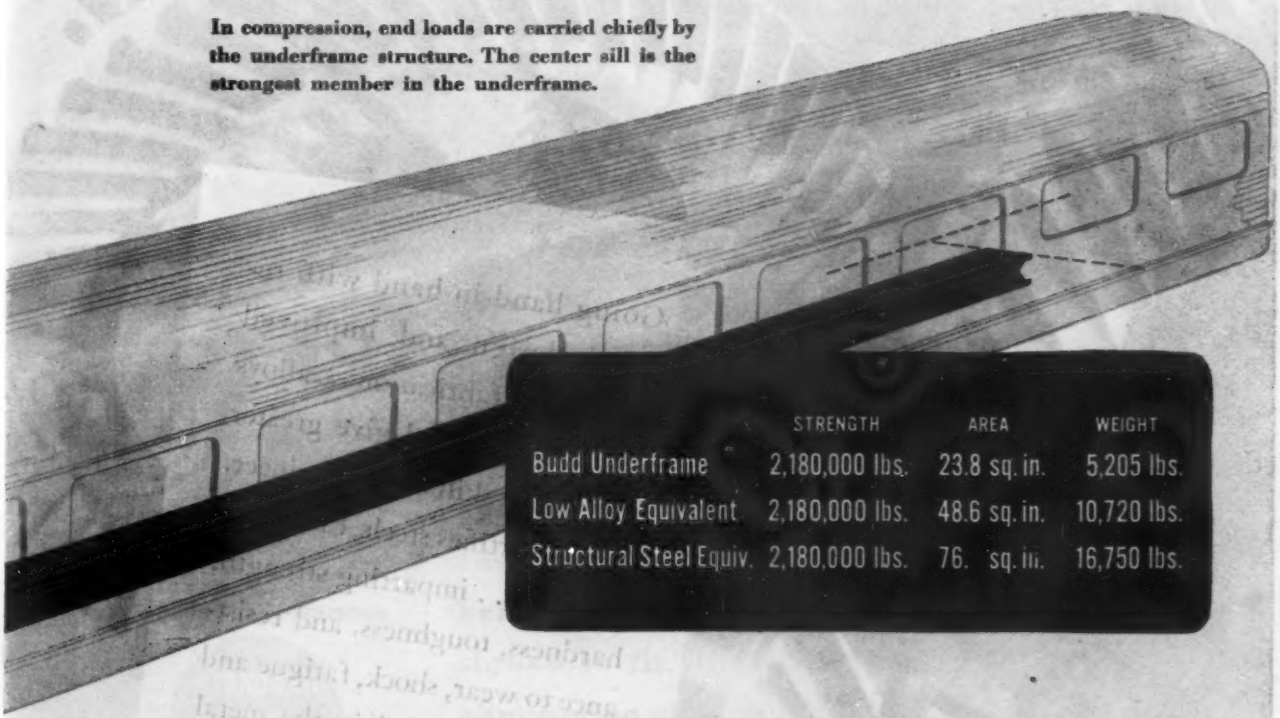
Greater strength and safety, along with the economical advantage of light weight, high light the extra value of Budd Cars—value that is proved by laboratory test and by many years of satisfactory high speed service.



H AND SAFETY WITH *LIGHT WEIGHT?*

Compressive strength of the Budd Underframe is due to a combination of superior metal and ingenious design.

In compression, end loads are carried chiefly by the underframe structure. The center sill is the strongest member in the underframe.



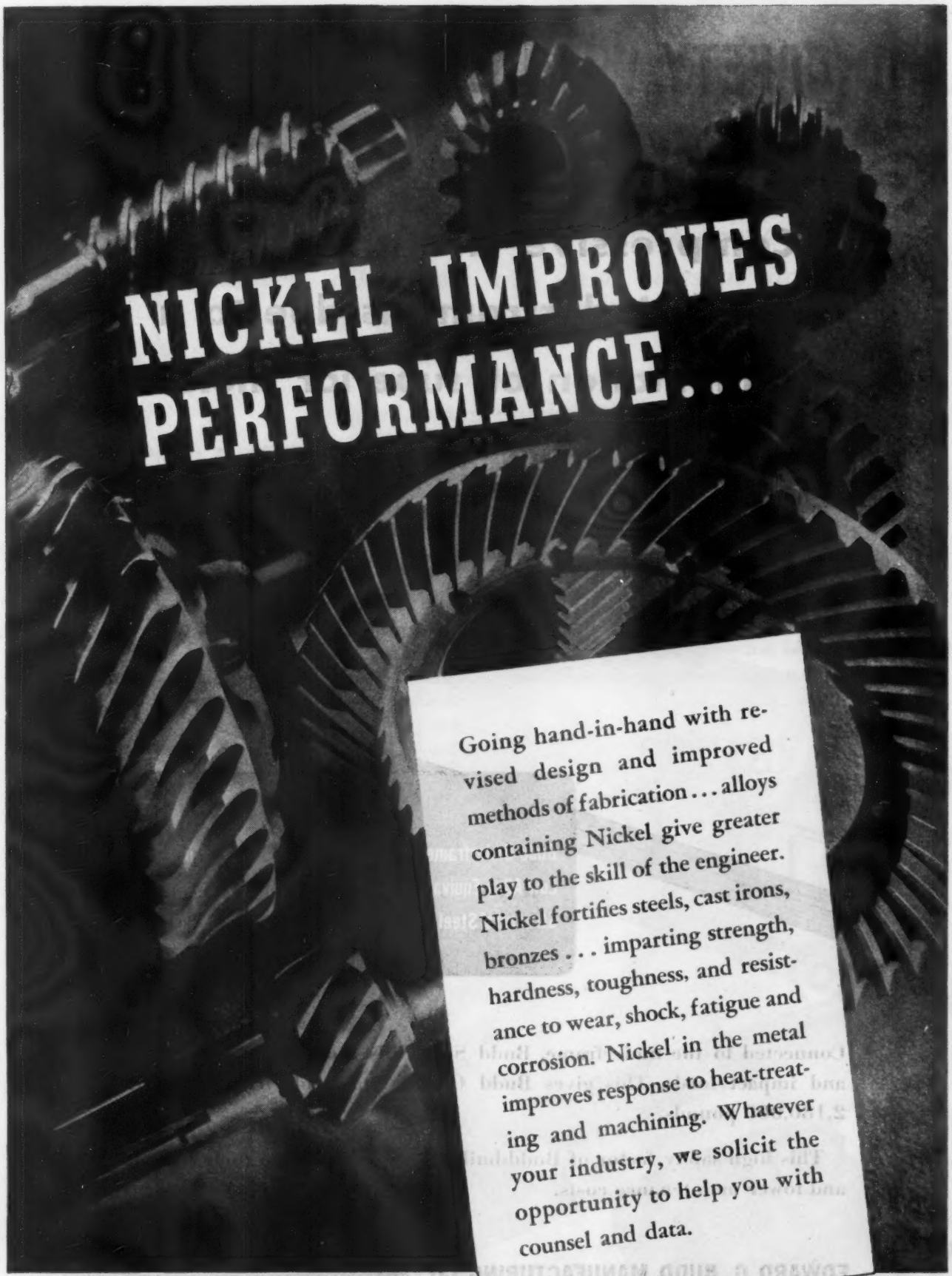
	STRENGTH	AREA	WEIGHT
Budd Underframe	2,180,000 lbs.	23.8 sq. in.	5,205 lbs.
Low Alloy Equivalent	2,180,000 lbs.	48.6 sq. in.	10,720 lbs.
Structural Steel Equiv.	2,180,000 lbs.	76. sq. in.	16,750 lbs.

Connected to the underframe, Budd Side Sills function under both static and impact loads. This gives Budd Cars a total underframe strength of 2,180,000 pounds.

This high safety factor of Budd-built cars contributes to their longer life and lower maintenance costs.

EDWARD G. BUDD MANUFACTURING CO. Budd

PHILADELPHIA • DETROIT • NEW YORK • CHICAGO • ST. LOUIS • WASHINGTON • SAN FRANCISCO



Going hand-in-hand with revised design and improved methods of fabrication... alloys containing Nickel give greater play to the skill of the engineer. Nickel fortifies steels, cast irons, bronzes . . . imparting strength, hardness, toughness, and resistance to wear, shock, fatigue and corrosion. Nickel in the metal improves response to heat-treating and machining. Whatever your industry, we solicit the opportunity to help you with counsel and data.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.

Lighter

Stronger Better

Schaefer Appliances

STANDARD ON MOST ROADS

For High Speed Service Use the New

Schaefer EVER-TITE Wear Plate

In the new Schaefer EVER-TITE wear plate, springs are introduced into the wear plate to save needless wear on the side frame brackets. The entire plate assembly is designed to fit firmly into side frame bracket, eliminating play and resultant wear. Especially recommended for high speed freight service.

LIGHT WEIGHT DESIGN INSURES MORE THAN CAR LIFE

Schaefer **EQUIPMENT COMPANY**

KOPPERS BUILDING • PITTSBURGH, PA.

DROP-FORGED FOR LIGHT WEIGHT, HIGH STRENGTH, LONG LIFE AND SAFETY

Most Capacity Per Pound—for Post-War Cars

When it comes to providing adequate capacity in the electrical systems on post-war cars with the least weight, an obvious solution is to select light-weight electrical equipment—including Edison Alkaline Batteries.

Not only are they the lightest weight type of battery available for railway-car service but they save weight where it counts most—near the middle of the car. The larger the kilowatt-hour capacity, the greater is the weight that can be saved by using alkaline batteries.

An outstanding reason for their light weight is their steel cell construction—a construction that gives alkaline batteries the further advantage of unequalled mechanical strength.

Alkaline batteries are equally suitable for use in 32-volt, 64-volt or 110-volt systems. They have been giving dependable service for many years in all three. *Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey.*

Edison

THE LIGHTWEIGHT BATTERY
FOR LIGHTWEIGHT CARS

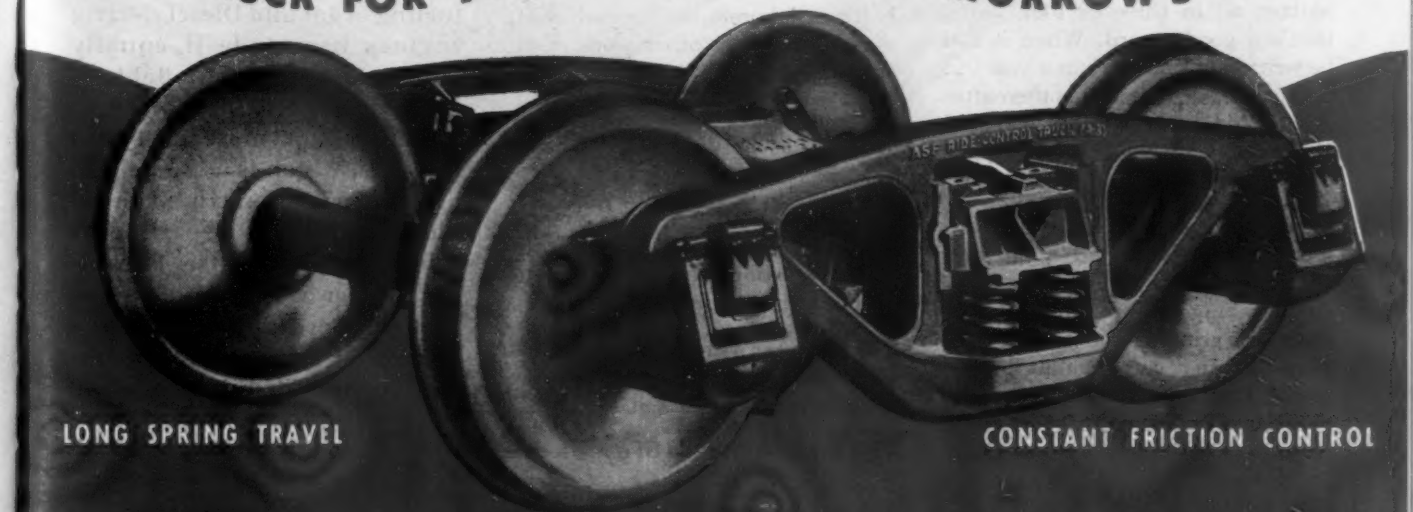
The electrical system of this modern streamlined car provides power for air-conditioning equipment, ample lighting, and a variety of electrical equipment in the kitchen, all of which, taken together, play an important part in passenger comfort, and emphasize the desirability of lightweight, dependable storage batteries. Post-war cars, too, are expected to make extensive use of electric power.

Ride-Control

GETS ALL THE "GIVE" FROM COIL SPRINGS!

Coil springs give a smooth, easy ride when used with the A.S.F. Ride-Control Truck (A-3). They develop their best riding qualities because the unique principle of constant friction that controls them does not perceptibly interfere with their softness when absorbing impact—does not materially affect their cushioning qualities. It *does* enable coil springs to develop their best riding qualities.

THE TRUCK FOR TODAY'S NEED . . . TOMORROW'S SPEED!



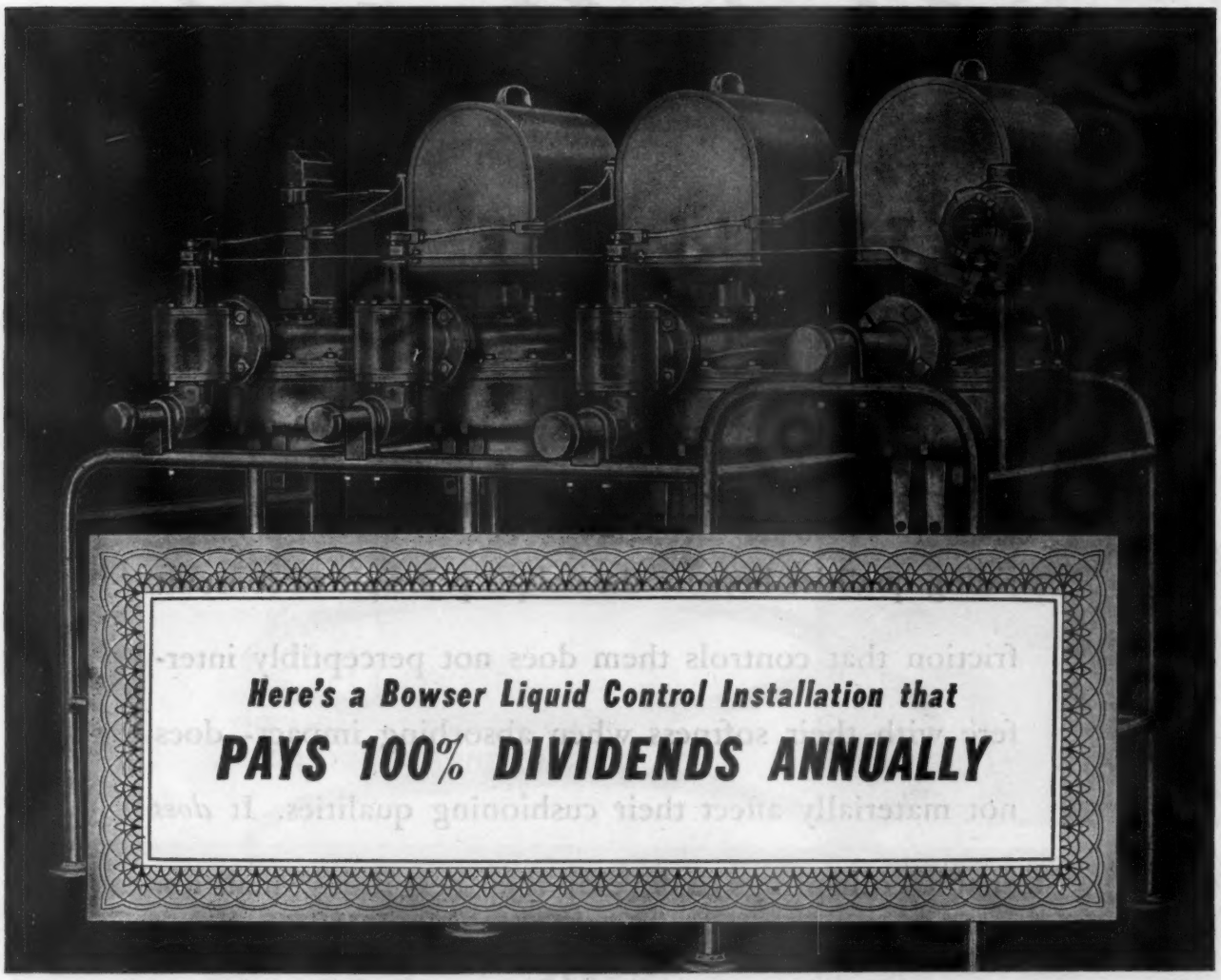
LONG SPRING TRAVEL

CONSTANT FRICTION CONTROL

AMERICAN STEEL FOUNDRIES

CHICAGO

REG. TRADE-MARK OF FINE CAST STEEL



Here's a Bowser Liquid Control Installation that

PAYS 100% DIVIDENDS ANNUALLY

When plant equipment can be written off in three or four years, that's a good record. When it can be written off in less than a year . . . and pays 100% dividends thereafter . . . it's likely to be Bowser Liquid Control Equipment. Here's a typical case history:

A nationally-known plant in New York State installed a Bowser 2-meter Soluble Oil Proportioner (with piping and pumping equipment) for grinding and cutting solutions used in seven different departments. Previously the solutions were mixed in open drums and distributed manually.

RESULTS . . .

1. Three laborers, one for each shift, were released for other work. Estimated annual saving—$9,360.00.

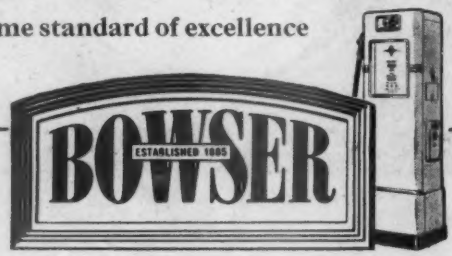
2. Soluble oil consumption was reduced 10%. Estimated annual saving—$900.00.

3. Space for two storage drums was saved in each of seven departments. The proportioner and tanks in the oil house take only 30 square feet.

The first year's savings on labor and oil far more than paid for the entire installation. After that, it's "velvet".

The same standard of excellence in Bowser equipment for the fueling of gas and Diesel electric engines has made it equally outstanding in that field. A Bowser unit will pump 800 to 850 gallons or more in 4 to 5 minutes, which is a big help in maintaining wartime schedules. Accounting departments value highly the Bowser Recording Printer Meter, which automatically prints up to 8 copies of the delivery record. Write today for detailed information.

BOWSER, INC., Dept. 38-E, Fort Wayne 2, Ind.



BUY WAR BONDS

Not only has Bowser's war production earned the Army-Navy "E" . . . Bowser equipment has helped earn it for scores of other companies.

The Name That Means Exact Control *of Liquids*

Tomorrow's POWER Today!

It's the
Opposed-Piston
Diesel Locomotive
by

FAIRBANKS-MORSE

A name worth remembering

This happens to the best galvanized sheets...

Galvanized sheet steel is an excellent metal for many purposes, but there is one thing it won't do. It won't take and hold paint satisfactorily. The photo tells the story. The raw zinc surface dried out the essential oils in the paint, caused it to become brittle. Result: early paint failure.

This happens even when the zinc surface is acid-etched. Etching has other disadvantages, too. Besides being slow and costly, it destroys part of the protective zinc coating.

Paint on regular galvanized steel *isn't* satisfactory . . .

But this bonds paint to zinc

ARMCO Galvanized PAINTGRIP sheets are the answer to this old problem. They can be painted immediately. Tests show they take and hold paint even better than a sand-blasted hot rolled sheet. What's more, they give your products this *triple protection* . . . .

1. The high-quality steel base has a *full-weight zinc coating.*

2. The coating is given a special Bonderizing treatment at the Armco mills.

3. This "insulated" surface grips paint in a lasting bond—prevents it from drying out quickly and peeling and flaking.

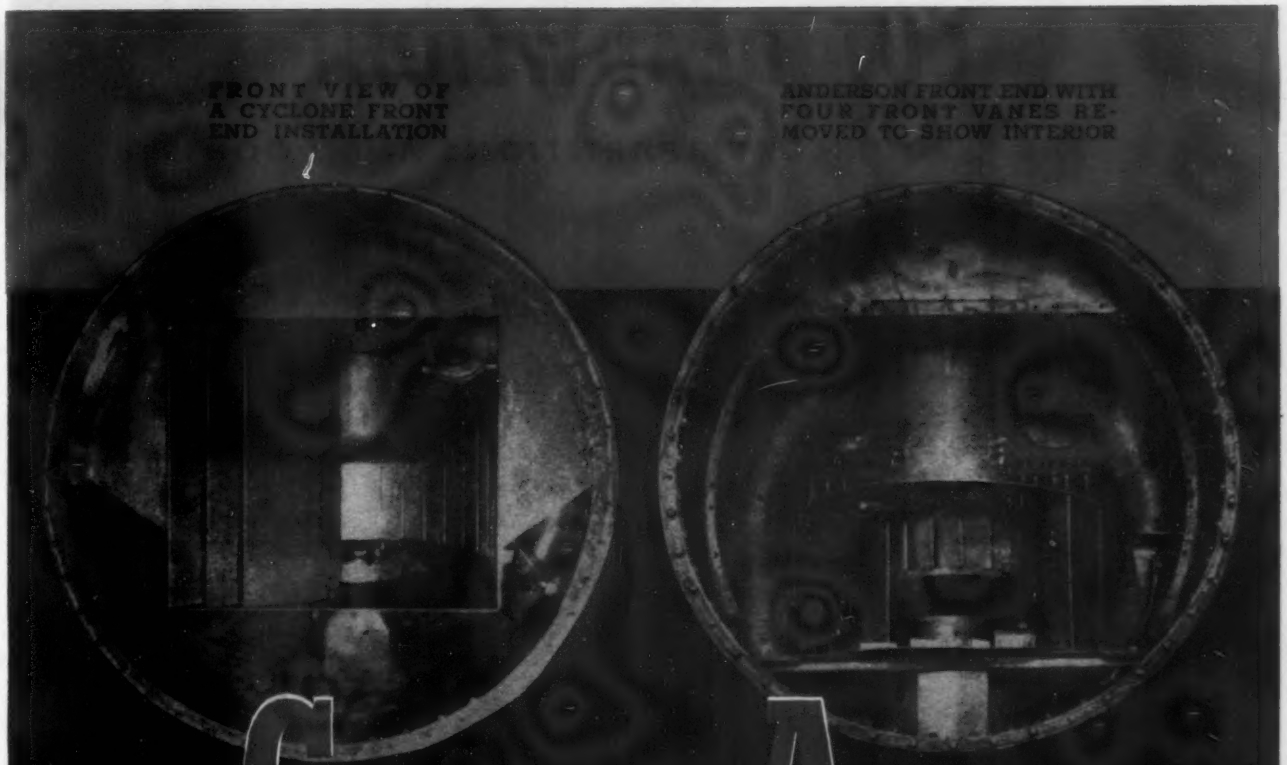
Whatever railway equipment you make of galvanized sheet steel that is to be given an *attractive and durable* paint finish, ARMCO Galvanized PAINTGRIP sheets are the logical choice. Write for the free PAINTGRIP booklet. It gives complete information. Just address Armco Railroad Sales Co. Inc., 1491 Curtis Street, Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

The "Scratch Test" shows how paint sticks to ARMCO Galvanized PAINTGRIP Steel. The top half of the sample is mill-Bonderized. When scratched with a pen knife only a slight mark can be seen. Paint on ordinary galvanized (bottom half) scrapes off readily.

ARMCO
Railroad Sales Co. Inc.
SPECIAL-PURPOSE SHEET STEELS

GALVANIZED PAINTGRIP STEEL — ARMCO



FRONT VIEW OF A CYCLONE FRONT END INSTALLATION

ANDERSON FRONT END WITH FOUR FRONT VANES REMOVED TO SHOW INTERIOR

CYCLONE and ANDERSON FRONT ENDS

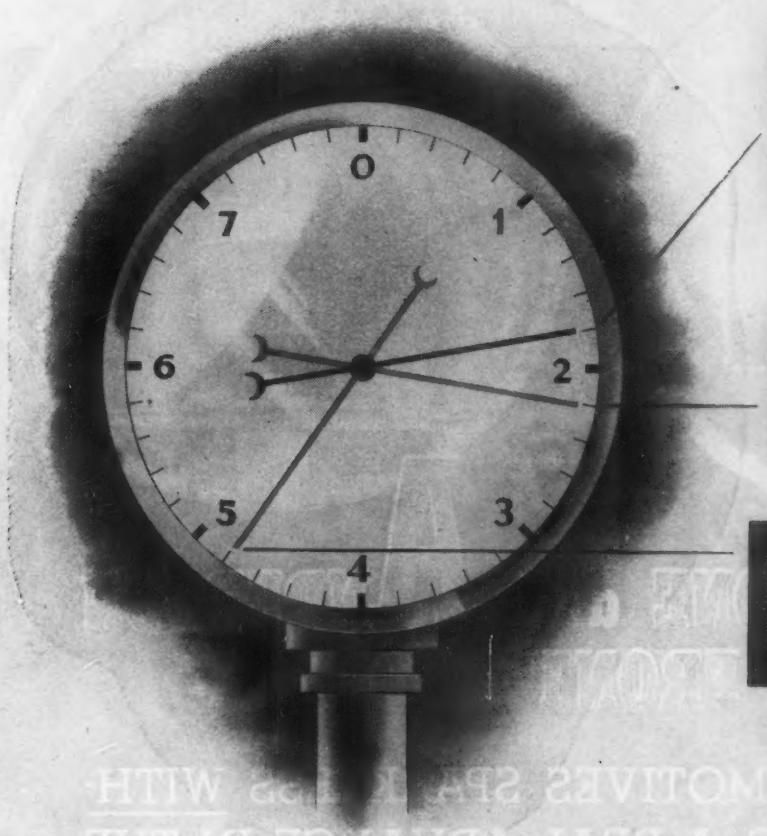
MAKE LOCOMOTIVES SPARKLESS WITHOUT NETTING—A REAL ADVANCE IN THE ART OF DRAFTING. NO STEAM FAILURES ON ACCOUNT OF PLUGGED NETTING. BETTER DRAFTING WITH LARGER NOZZLE TIPS. REDUCED BACK PRESSURE OF 25% TO 40% WITH INCREASED CAPACITY AND SPEED. LESS FREQUENT INSPECTION AND MAINTENANCE.

Locomotive Firebox Company

PHILADELPHIA CHICAGO MONTREAL

CUT DEADWEIGHT

FROM YOUR COACH PARTITIONS AND DOORS



PLYMETL (aluminum)
1.8 lbs. per square ft.

HOLLOW ALUMINUM
2.2 lbs. per square ft.

HOLLOW STEEL
4.8 lbs. per square ft.

The above weights show that ½" Plymetl (aluminum two sides) saves from .4 pounds to 3 pounds per square foot over other types of construction.

For example, if your coach has 400 square feet of partitions, a comparison would show:

Hollow steel partitions will weigh	1920 lbs.
Plymetl partitions (½" UVU) will weigh	720 lbs.
Plymetl will save	1200 lbs.

Twelve hundred pounds of deadweight is eliminated in 400 square feet of partitions!

Plan with Plymetl. It reduces man hours, cuts finishing costs and makes quieter partitions.

HASKELITE

PLYMETL

HASKELITE
MANUFACTURING CORPORATION
Department RR-2
Grand Rapids 2, Michigan

NEW YORK CHICAGO DETROIT ST. LOUIS CANADA: RAILWAY & POWER ENGINEERING CORP., LTD.

"WE KNOW THEY DO A GOOD JOB AND ARE ECONOMICAL TO OPERATE"

—W. E. LEHR, *Superintendent of Equipment and Shops, Lehigh Valley Railroad*

***Important mechanical features include:** "Hi-Electro" hardening, which gives crankshaft journals and many other vital parts extra wear-resistance; and Superfinishing, which makes bearings ultra-smooth for added life. "Hi-Electro" hardened cylinder liners, chemically treated for fast break-in. Individually replaceable and interchangeable injection pumps and also injection valves. Oil-bath air cleaners. Efficient oil filters. Absorbent-type fuel filters. Dual engine cooling. Exclusive fuel system — designed and built by "Caterpillar" — which burns even such low-grade fuel as No. 3 domestic burner oil CLEANLY (enables idling indefinitely without fouling or choking up).*

"Caterpillar" Diesel-powered 44-tonners *stay* on the job. With the records of scores of units showing an extraordinary minimum of lost time, they probably come as near the fulfilment of "100% availability" as has ever before been achieved in locomotive operation.

High availability applies to their minute-by-minute, as well as their day-by-day, readiness. With no waiting needed to "get up steam," these Diesel-Electric 44-tonners respond instantly to orders, tackle capacity loads, get around fast on spotting and make-up work.

Many exclusive features plus simple design, precision manufacture and rugged construction account for "Caterpillar" Diesels' unusual stamina, dependability and long life.*

The rapidity with which 37 class railroads have adopted this modern type of motive power is the best reason for getting all the facts. They will be furnished gladly on request.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR *DIESEL ENGINES*

REG. U.S. PAT. OFF.

TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

COMFORT ENGINEERING

for the men who will design tomorrow's trains

The three-tier "Budget" Sleeper, developed by The Pullman Company, provides low-cost accommodation, without lessening the comfort or the length of a single berth.

Koylon Foam is Engineered Cushioning proved in use over many years as the superior rubber foam giving the ultimate in comfort, permanent durability and minimum maintenance cost.

Six years before the war America gained a new product, "U.S." Koylon Foam which proved itself the most comfortable and versatile of all transportation cushioning.

Today, "U.S." Koylon Foam promises the planners of tomorrow's railway car interiors a new freedom in sleeping and seating designs with molded standard units as well as yardage from which comfort can be "cut to fit."

Although "U.S." Koylon Foam now serves war and medical needs exclusively, it is none too early to investigate its wealth of possibilities for your plans and inspirations for the railway cars of peacetime.

"U.S." Koylon FOAM

REG. U.S. PAT. OFF.

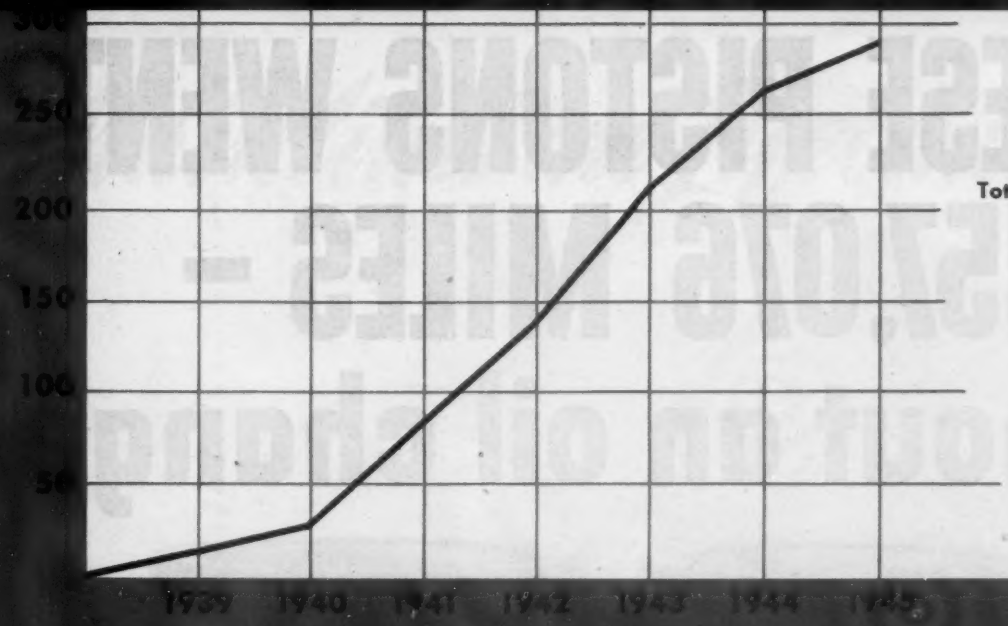
Mattresses and Seating

UNITED STATES RUBBER COMPANY

"U.S." KOYLON FOAM DIVISION · MISHAWAKA, INDIANA

Serving Through Science

Listen to "Science Looks Forward"—new series of talks by the great scientists of America—on the Philharmonic-Symphony Program. CBS network, Sunday afternoon, 3:00 to 4:30 E.W.T.



Build Your Next New Tenders with

COMMONWEALTH TENDER BEDS

Here's *convincing proof* of the outstanding advantages of Commonwealth Cast Steel Tender Beds, for each year since their introduction in 1939 sees an increasing number of locomotives with this advanced type of tender construction.

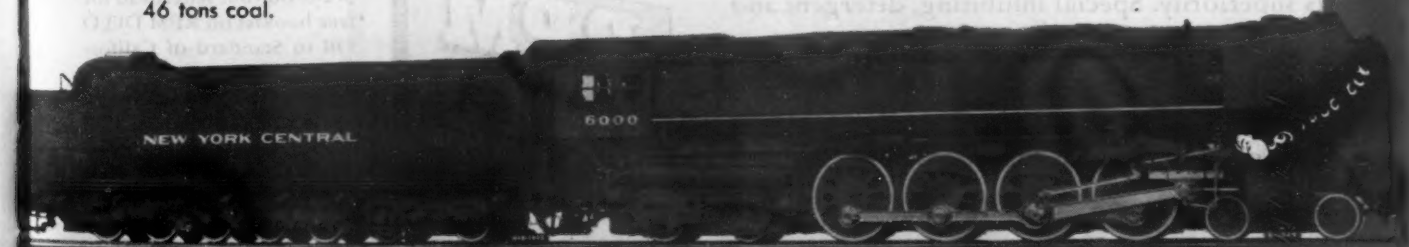
Only tenders with Tender Beds provide:

- ***Greater capacity within fixed limits of size***
- ***Less weight per gallon capacity***
- ***Larger diameter wheels—lower center of gravity***
- ***Greater reliability and lower maintenance costs***

These tenders are making history carrying heavy loads on fast schedules.

N. Y. C.'s NEW NIAGARA TYPE
Passenger or Freight Locomotive.

Tender Capacity:
18,000 gallons water
46 tons coal.



GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

THESE PISTONS WENT 157,076 MILES — without an oil change!

Rock Island "Rocket" Test Proves Superiority of RPM DELO Oil

With RPM DELO Diesel Engine Lubricating Oil in the crankcase, customary oil changes were forgotten, make-up oil added only as required. At the end of the trial RPM DELO Oil had proved its superiority. Special inhibiting, detergent and peptizing properties of RPM DELO Oil reduce wear, lower oil consumption and cost, eliminate hard or abrasive carbon, keep rings free, ports unclogged, and entire engine assembly cleaner.

RPM DELO Oil will give you greater engine availability, too. Get full information from your RPM DELO Oil Distributor, or write for details.

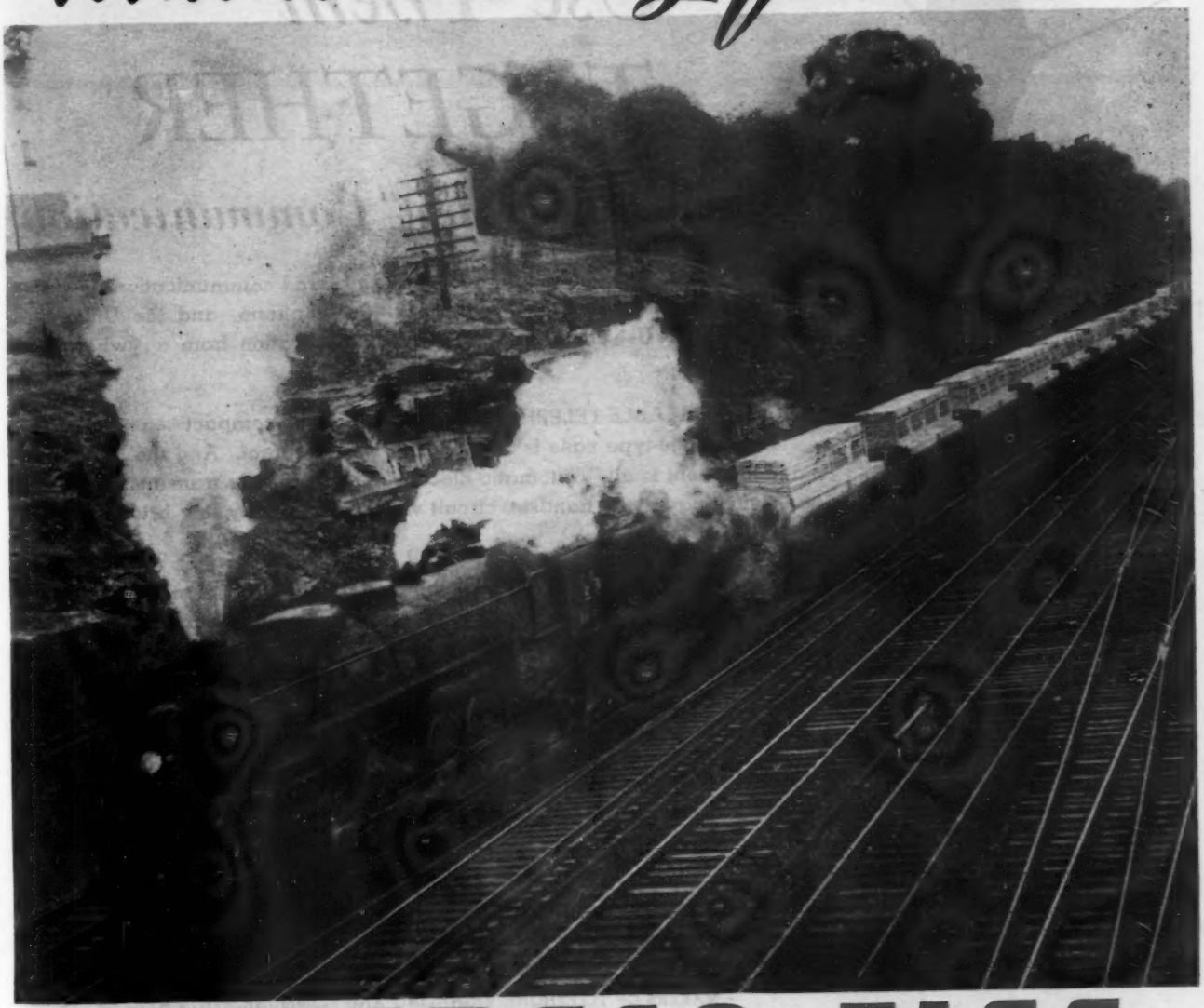
RPM DELO

DIESEL ENGINE LUBRICATING OIL

Write on your letterhead for free booklet on RPM DELO Oil to Standard of California, Dept. R-1, 225 Bush St., San Francisco 20, Calif., or California Commercial Co., 30 Rockefeller Plaza, New York 20, N. Y.

STANDARD OF CALIFORNIA

Mainlines are Lifelines ...



AMCRECO TIES

help keep them secure

AMERICAN CREOSOTING COMPANY
INCORPORATED

COLONIAL CREOSOTING COMPANY
INCORPORATED

AMCRECO
POWER PROCESS
CREOSOTED

GEORGIA CREOSOTING COMPANY
INCORPORATED

ADDRESS INQUIRIES TO CHICAGO, ILL., OR LOUISVILLE, KY.

TIES - PILES - POLES - TIMBER

Use Them TOGETHER

For "On-the-Spot" Communication

Here's a perfect combination for many railroad communication needs—Automatic Electric's Type 10 Portable Telephone, and the Universal Line Pole. Use them together, for communication from anywhere out on the line.

THE PORTABLE TELEPHONE is light in weight, compact—easy to carry. Its luggage-type case is rugged and weatherproof. And the telephone equipment is all "Automatic Electric"—capsule-type transmission units, switching key in handset, circuit with exceptionally low bridged transmission loss.

THE UNIVERSAL LINE POLE is the modern standard of many railroads. Convenient 3-foot sections snap together to make a 12-foot length (or longer, with additional sections). Line connectors make firm, low-resistance connections to crossarm or bracket line wires up to 33 inches apart. Rubber-covered cord, 45 feet long, connects to terminals on telephone (or test set).

Each of these items is perfect for railroad use. Use them together—an unbeatable combination!

AUTOMATIC ELECTRIC

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS
Distributors: AUTOMATIC ELECTRIC SALES CORPORATION,
1033 W. Van Buren St., Chicago 7, Illinois.
In Canada: AUTOMATIC ELECTRIC (CANADA) LIMITED, Toronto
Sales and Service Offices in Principal Cities

Type 10 Portable Telephone
With Generator and Bell—AG-18
With Generator, No Bell—AG-19
With Bell, No Generator—AG-20
Without Bell or Generator—AG-21

Universal Line Pole
Complete (12 ft. long)—S-5935
Additional 3-ft. section—S-5933
Heavy Canvas Carrying Bag (extra)—S-2338

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette, and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 118 May 12, 1945 No. 19

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7 N. Y. AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING, CLEVELAND 13: TERMINAL TOWER, SEATTLE 1: 1033 HENRY BUILDING, SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES 14: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT. ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, H. E. McCANDLESS, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR. ROY V. WRIGHT, MANAGING EDITOR. JAMES G. LYNE, ASS'T. TO EDITOR. CHARLES LAYNG, WESTERN EDITOR. C. B. PECK. ALFRED G. OEHLER. E. L. WOODWARD. J. H. DUNN. H. C. WILCOX. NEAL D. HOWARD. GEORGE E. BOYD. WALTER J. TAFT. M. H. DICK. JOHN S. VREELAND. C. MILES BURPEE. ARTHUR J. McGINNIS. J. L. STOVER. C. B. TAVENNER. H. E. MEASON. CHARLES ROBINSON. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: BETTY KETCHUM.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK 7.

In This Issue

Page

Bridging the Colorado River Is Big Job ***823***

New double-track structure, replacing 55-year old single-track bridge, at Topock, Ariz., corrects weak link on Santa Fe lines—permitting speedy movement of transcontinental war traffic.

One Year of Train Communication Tests on the Rio Grande ***828***

W. W. Pulham, superintendent of communications, comments on the use of various forms of modulation, types of antennae, frequencies and power on caboose.

C. R. I. & P. Steam Power Breaks Records ***830***

This railroad's 110 new and rebuilt locomotives, described herein, not only have demonstrated their ability to expedite traffic, but also have given further proof of the efficiency of modern design.

EDITORIALS

Do Railroad Employees Favor Socialized Power? 819
Friendly Relations with Writers of History 820
Fighting for Safety 821
Maximum Economies Require Good Planning 821
Loaves and Fishes 822
Short Loads 822

GENERAL ARTICLES

Bridging the Colorado River Is Big Job 823
One Year of Train Communication Tests on the Rio Grande, by W. W. Pulham 828
C. R. I. & P. Steam Power Breaks Records 830
Ferrying Railroad Equipment to France 833

RAILROADS-IN-WAR NEWS 834

GENERAL NEWS 840

REVENUES AND EXPENSES OF RAILWAYS 854

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

★

PRINTED IN U. S. A.

this is the reason why

railroads are using *MORE* spring switches

THIS LOCK

—the "Union" S-20 (S-21 with Target) Mechanical Facing Point Lock, has been installed on more than 900 spring switches since 1939.

Railroads are using it because it gives all the usual spring switch advantages in trailing moves, and also permits facing-point moves to be made with complete safety at normal speeds.

Our nearest district office will be glad to show you how you can save time *safely* with this equipment.

In addition, it has these *extra* values—

1. It is easy to operate.
2. Its design protects it against dragging equipment.
3. It is strongly built, requiring minimum maintenance.
4. Parts are largely interchangeable, between the S-20 and the S-21. The S-20 can be converted to the S-21 in the field.
5. It is universal in application, usable for either right hand or left hand installations.

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PENNSYLVANIA

NEW YORK · CHICAGO · ST. LOUIS · SAN FRANCISCO

The Week at a Glance

POST-WAR SHOPS: The time has come for a major operation to be performed on a vital part of the railroad plant, an editorial points out this week. Generally speaking, shops are not geared to function most effectively and efficiently in handling the types of motive power that designers and builders are now providing, it is noted, hence money and talent should be applied now, before it is too late, to a thorough-going appraisal of shop facilities as they are and as they might be, in order that expenditures for new tools and shop equipment may be made judiciously as the opportunity to satisfy long-felt needs is at last translated from the future into the present.

●

NEW WAYS TO SAFETY: The purpose and architecture of a new booklet intended to focus fresh attention by railroad employees on the never-more-important matter of accident prevention are discussed in an editorial this week. The publication is the work of Charles E. Hill, the New York Central's general safety agent.

●

TRANSPORTATION SEMINAR: Meeting last week in Washington, the Academy of World Economics devoted several days to a well-rounded program under the general heading "Transportation in War and Peace." Spokesmen for the principal agencies of domestic transportation were heard, as were government specialists in the field and officers from the Army Industrial College, which collaborated in sponsoring the affair. As reported in the news pages, the post-war prospects of each form of transportation were analyzed in formal addresses and panel discussions, while a question of surpassing interest and importance, giving rise to widely divergent views—that is, "Integration versus Coordination"—was made the subject of a separate session. The post-war prospect for the railroads was reviewed by Judge Fletcher, whose generally optimistic views are outlined herein. C. B. Bryant of the Southern called attention to some technological and economic considerations awaiting solution. When integration was brought up, the ball was carried by Dr. Sorrell for the airlines and John V. Lawrence for the truckers on the anti's team, while Carleton Meyer of the New York Central expounded the viewpoint of the supporters of integration.

●

SERVING WHAT MASTER?: This issue's leading editorial raises the question whether those who assume to speak for the railroads' employees are representing the interests of those employees, or of the advocates of a socialistic economy in which the government would put private enterprise out of business. Certainly the approval which the brothers' weekly paper has bestowed upon T. V. A.'s sophistically conceived bookkeeping processes—the fallacies of which are not impossibly difficult to discover or to appreciate—and the resulting argument that "cheap" electric power (that is, for everybody except the taxpayers) ought to be made available to one and all by government appropriation of this proper field of individual and corporate endeavor—certainly this line of reasoning suggests a deliberate purpose to reduce the railroads' power to provide jobs. What else could be the objective of a campaign to extend the waterways available to barge lines competing with the railroads and to impoverish the coal industry, one of the railroads' best customers?

●

EMPLOYEE RELATIONS: Two reports embodying further fruits of the research of the Railroad Committee for the Study of Transportation's subcommittee on labor and personnel are reviewed in the news pages this week. One deals with railroad personnel practices, the other with sharing information about their railroad and the industry with employees. The former drives home the point that responsibility for success in employee relations rests, not merely on the personnel staff but on every member of the management organization. The other report surveys the various means available for the proliferation of employee understanding of employer responsibilities and viewpoints and problems. Also noted in a news item is the resignation of A. E. Perlman from the chairmanship of another subcommittee in Judge Fletcher's group, that dealing with engineering and mechanical research.

●

WARNING WORDS: If the railroads' needs for rehabilitation and replacement of equipment and relief of manpower shortages are not soon attended to by the proper authorities, the people who have been finding fault with the distribution of the car supply will really see a stringency in civilian transportation to complain about, according to Colonel Johnson. His accounting to the senatorial investigators of the measures taken by the O. D. T. and I. C. C. to overcome the admittedly serious and embarrassing lack of box cars in the grain states is reported in the news columns.

●

STEAM ON THE ROCK ISLAND: With a hundred modernized steam locomotives and ten brand new ones, the Rock Island has turned in some striking performance records to uphold the reputation of this type of motive power, as an illustrated article explains this week. Details are given of the rebuilding program, which included application of roller bearings on driving-wheel journals, modified counterbalancing, and increased tender capacity among other features calculated to result in higher monthly mileage, longer intervals between tire turnings, and reduced repair expenditures.

●

COST OF COAL: What the latest miners' benefit performance at Washington of the "hold the line" drama has done to the railroads' bills payable is brought out in the current I. C. C. Statistics Bureau's "Monthly Comment," in which it is calculated, as reported in the news pages, that the estimated average increase of 16 cents per ton in the price of coal would cost the carriers about $2 million a month.

LAND-GRANT GAINS: The House last week passed the Boren land-grant rate repealer, without any of the emasculating amendments which opponents of the bill endeavored to have incorporated in it. In the preceding Congress the House gave the proposal equally favorable treatment, but it made little headway in the Senate against the tide of legislation that flooded that body in the session's closing weeks. With an earlier start this time, supporters of the measure have a year longer to win approval for it there. No senatorial opponent, so far, has joined Congressman Kirwan in suggesting that the A. A. R. ought to be awarded an *Iron Cross* for its contributions to the war effort.

●

BIG BRIDGE: As resources and materials become available to carry out long-incubated plans, more and more railroad bottlenecks are disappearing. An illustrated article on page 823 describes in detail the engineering features of the 1,506-ft. double-track, ballasted-deck bridge recently completed by the Santa Fe at Topock, Ariz., where that road's main line to the Pacific coast crosses the treacherous and turbulent Colorado river. In addition to the bridge structure itself, the project required about 5 miles of track relocation to secure better grade and curvature characteristics. The magnitude of the undertaking is indicated by the fact that it involved erection of what is reported to be the deepest pneumatic pier in the United States, extending 123 ft. below normal water level at the deepest part of the river.

●

RADIO ON THE RIO GRANDE: The results of a year's experience with radio train communication on the Denver & Rio Grande Western are reported in an article, on page 828, by W. W. Pulham, that road's superintendent of communications. Because the terrain over which the tests were made is one of exceptional difficulty, their results are particularly indicative of the obstacles that may be encountered in making radio train communication an effective and dependable part of regular operating technique, and of the varieties of radio equipment construction that promise most success in overcoming such obstacles.

●

BRIEFLY NOTED: The Army and the A. A. R. had laid elaborate plans to halt European-bound munitions en route to the ports on V-E Day, but the deliberateness of the German collapse averted the need for the drastic action that had been contemplated. . . . Net was up in March, as compared with the same 1944 month—the first time in 22 months its downward trend has been reversed. . . . General Gray, in an open letter appearing on page 827, straightens out the perspective on the 716th operating battalion. . . . This being a war year when non-essential work is out, as an unpatriotic use of labor and materials, the Public Roads Administration appropriation is a mere $88 million. . . . South Trimble, Jr., is the new boss of the government barge lines.

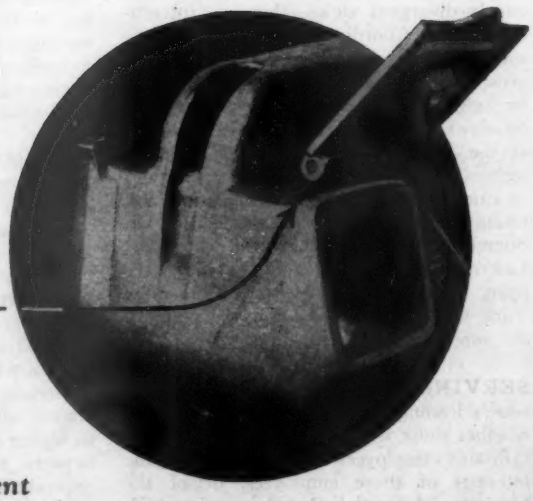
NATIONAL Side Frames For Replacement

NATIONAL Side Frames

made to the latest A.A.R. Specifications . . . Provide greater safety and reduce maintenance expense at *No Additional Cost.*

Separate brake beam supports are not required when side frames are furnished with National Safety Brake Beam Supports cast integral.

Journal Box Water Ledge —— Keeps out water and dirt and reduces number of hot boxes.



Specify National A. A. R. Side Frames For Replacement

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

RAILWAY AGE

Do Railroad Employees Favor Socialized Power?

In a recent issue, "Labor", weekly paper of the railway unions, published a report headed "Propaganda That T. V. A. Doesn't Pay Taxes Is Blasted." The account asserted that the Tennessee Valley Authority "sets aside 7 per cent of its gross revenue for payment to state and counties in lieu of taxes." It was admitted that T. V. A. pays no federal taxes, but net income from the sale of power was likened to federal taxes which a private corporation would pay since, it was argued, T. V. A.'s net income is "available for federal purposes" just as are the taxes collected from private corporations.

The facts are as follows: T. V. A. paid $2,168,798 "in lieu of taxes" in 1944 which was approximately 6.1 per cent of its $35,429,546 in gross revenues from power sold. The privately owned electric power industry was taxed at approximately 23.8 per cent of its gross revenues, so T. V. A., if not to be favored, would have been taxed at $8,432,232. It fell short, therefore, by $6,263,434 of paying the taxes which it would have paid had it been in private ownership.

Misleading Bookkeeping

T. V. A.'s total assets for 1944 were shown at $763,666,809. To stay in business, a private company would have to pay interest or dividends on its investment. Counting T. V. A.'s annual interest cost to the American people at only the 2 per cent rate at which the federal government can, on the average, borrow money, accounting comparable to that of private business would have required the agency to charge $15,273,336 "in lieu of interest." Actually, it charged $621,579 to interest, leaving a deficiency of $14,651,757 of interest obligations which did not enter into its accounts.

Adding to the foregoing $14,651,757 deficiency in return on capital the deficiency of $6,263,434 in taxes, as shown above, the total of $20,915,191 is obtained as the increased expense which T. V. A. would have been obliged to reflect in its accounts if they had been kept on a basis comparable to those of a private business. If the "net income," $6,581,629, reported by T. V. A. be deducted from this total, the result, $14,333,562, is a charitable estimate of the donation by all the people of the United States who pay taxes to the persons who are the direct beneficiaries of the T. V. A.'s services. But for the fact that T. V. A. does not have to include taxes at the average paid by private power companies and interest at the low figure of 2 per cent in its charges to its customers, it would have had to have collected from its customers—not the $35 million it actually received, but almost $50 million, an increase of 43 per cent. That is the measure—and a generous one to T. V. A.—of the degree to which it is underselling private power companies, not by its superior economy, but purely by misleading bookkeeping.

Crippling a Good Customer

Why should such a paper as "Labor" take delight in seeing the coal industry, which provides tonnage and jobs on the railroads, uneconomically undermined by socialized electrical power? The same issue of that publication which gloats over T. V. A.'s progress in crippling, by accounting legerdemain, the industry which is the railroads' principal customer contains an editorial stigmatizing Senator Byrd of Virginia for the recent successful fight led by him to defeat the plan to create "a T. V. A. at the back door of Washington," by extensive damming of the Potomac and its tributaries. "Labor" says the failure of this project has denied "cheap electricity" to millions of people—but, as with all these federal power projects, their product is "cheap" to the buyer only because taxes are paying a large percentage of the actual cost.

Railroad Jobs Destroyed

Such government developments, being contra-economic, reduce the wealth of the people as a whole more than they enrich the direct beneficiaries—which is sufficient reason for any patriotic American to oppose them. But they bring an especial hardship on railroad employees, not only because they destroy railroad jobs by reducing the use of railroad-hauled coal, but because they also provide toll-free barge transportation for other traffic which honest economics would assign to the railroads.

What are the editors of "Labor" working for anyhow—the welfare of railroad employees or a socialist revolution? As was pointed out editorially in our February 10 issue, page 294, the official publication of the United Mine Workers does not adopt such a complacent attitude toward the development of water power to the detriment of the production and transportation of coal. The U. M. W. press defends the economic interests of its members.

Friendly Relations with Writers of History

The widespread popular opinion—assiduously cultivated by collectivists and sensational writers of the "robber baron" school—that the purposes and practices of large corporate enterprise are largely predatory will in good time undergo a decided modification if the willingness of corporations to make their records available to scholarly study continues its present growth. There is no other current development which has more promising potentialities than this one for improved public relations, and railroads which have not yet looked into the opportunities it affords them in this direction certainly owe it to themselves to make appropriate inquiry.

In brief, what is involved is the establishment of a relationship based upon forthright candor with the scholars who write serious books—histories especially—comparable to that which has already been attained with the daily press. There was a time when press relations were otherwise conducted—when the attempt was made to conceal unsavory facts and to make available only those which would reflect favorably on a company's reputation. The trouble with this treatment of the press was that its proper zeal for news was left unsatisfied and that, since the company could not be relied upon for dependable assistance to this end, reporters had to seek their information elsewhere, wherever it could be found. Very little news of a nature harmful to the corporation was suppressed by the former corporate policy toward press relations, but a great many developments which could have been honestly reported to the corporation's advantage were reported in a manner to injure its reputation.

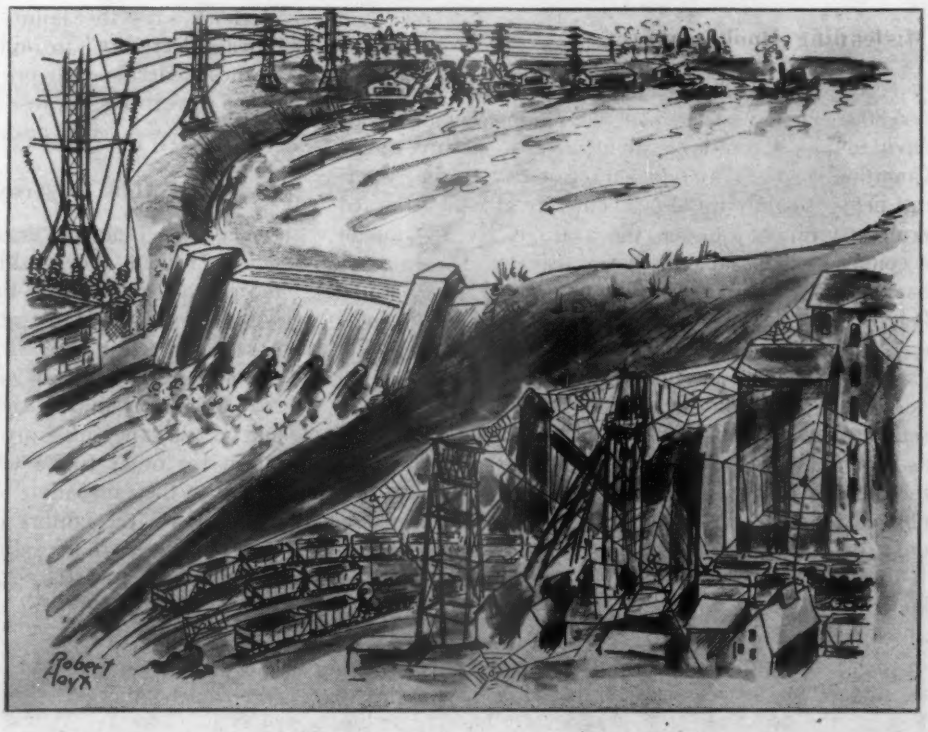
Most railroads and other large businesses have now learned this lesson. They have learned that by being candid in revealing their bad news, they have won the confidence and respect of the press, which has come to look upon such corporations as dependable news sources. Quite probably no more, and possibly less, unfavorable corporate news is printed now than in the days of attempted concealment, while the volume of reliable news of a favorable nature which achieves publication has greatly increased. Generally speaking, that is, the daily press is fair to the railroads and most other large modern businesses in its news pages, and is fair and friendly to them in its editorial pages.

Turn, however, to the history books—almost any of them, the texts used in elementary schools or the serious works of painstaking scholars in economic history—and a reflection of the old spirit of suspicion of corporate motives and behavior will be found, comparable to that evidenced in the crusading daily press of the days of Roosevelt I. The reason is, primarily, the same one which formerly gave rise to a "bad press," i.e., corporate neglect to establish a relationship of dependable forthrightness with the writers. Historical scholars are compelled to "document" their writings. They can find plenty of "documentation" harmful to corporate enterprise in the instances of corporate pathology which come to light in court records and official investigation, but healthy and normal corporate behavior does not thus find its way into print. Practically the only "documentary" sources of publicly helpful corporate activity are in the old files of corporations, which can never reach impartial scholars unless these companies voluntarily make it available.

Considerable progress in this direction has occurred during the past eighteen months, as has been noted editorially in these pages in our issues of July 22 and October 7, 1944, pages 146 and 539, respectively. At a meeting of the Economic History Association last September, a session was devoted to "the corporation and the historian," at which several of the more important aspects of this general subject were discussed in a manner to give the reader a maximum of information on the extent of this problem and possible means of attacking it.

The speakers were Dr. Stanley Pargellis of the

Does Spending Tax Money for Water Transportation and Power Help Railroad Employees?



The paper "Labor" favors such developments as this

Newberry Library, Chicago, Ralph Budd, president of the Burlington, and Professor Colston Warne of Amherst, the last-named speaking from the standpoint of a socialist, evidently suspicious of any attempt at an honest rapprochement between scholars and corporate executives. An abstract of Mr. Budd's paper appeared in *Railway Age* of October 7, 1944, page 550, and all three papers were published in the "Tasks of Economic History," a supplement to the December, 1944, issue of the Journal of Economic History—from which, by permission, a number of mimeographed copies have been made. We shall be glad to supply copies of these instructive papers to any interested railroad officer, so long as the supply lasts.

Fighting for Safety

Steady progress has been made during the past three decades in improving the safety records on American railroads and yet, unfortunately, much still remains to be done. In 1913, for instance, there was one death for every 500 persons employed; in 1943 there was one death for every 1,600 persons employed. Because a considerable percentage of accidents are avoidable, and result from thoughtlessness and carelessness on the part of the employees—from the top to the bottom of the organization—every effort should be put forth to make every member of a railroad organization more safety-conscious.

Skillful safety officers have vied with one another in the effort to discover new and more effective ways by which to secure and rivet the attention of the employees on the prevention and elimination of accidents. It is significant, for instance, that while some foremen or supervisors have been able to carry on for years without an accident in their departments, others in similar work have comparatively poor records in this respect.

Charles E. Hill, general safety agent of the New York Central, has achieved a reputation for devising new ways of stimulating the officers and workers to become more safety-conscious and to improve their performances in accident prevention. His latest device is a 56-page booklet which can readily be carried in a side pocket, entitled, "Bob Hawley's Awakening." Part of it is in story form—a bit of romance—which skillfully dramatizes the needless hardships, mental agonies and complications caused by accidents. Interspersed throughout the booklet and loosely tied into the story, are photographs with extended captions illustrating how accidents of various kinds may be prevented. In the course of the story the safety movement on the X and Y Railroad is reorganized and speeded up, and this provides justification for incorporating in the book an outline of the history of organized safety on American railroads, and also a "brief treatise as to the application of the fundamentals of accident prevention."

The booklet is attractively arranged and printed and has introductions by President Metzman and Executive Vice-President Starbuck of the New York Central System. It is something new in the field of accident prevention and, if it is as highly regarded by the officers and employees to whom it is directed as it has been by the many railroad safety officers who have read it in manuscript form, it will be productive of substantial results.

Maximum Economies Require Good Planning

Informed and progressive railroad shop men are of the opinion that the major repair shops of this country are not in the best physical condition to approach the job of the post-war years on a favorable cost-competitive basis and that, now that earnings are satisfactory and new machine tools and shop equipment more readily available, the roads should accelerate their plans for modernization of repair plants. Awakened interest on the part of mechanical men is already being reflected in the greatest volume of orders in many years. Under such conditions it may seem inappropriate to inject a sour note and yet, if we are to believe what we are told by some individuals who have made a lifetime study of this problem, the railroads, in buying several millions of dollars worth of new equipment for repair shops, may easily perpetuate errors that have been made in the past; and may fail to derive from new equipment the economies they have a right to expect.

All of our steam-locomotive repair shops were designed and built many years ago and as far as layout is concerned remain practically unchanged. In the meantime the steam locomotive has undergone major changes that require radically different maintenance methods. How, then, can new machine tools be purchased and dropped into place in a shop layout 20 to 40 years old and maximum economies be expected?

Another point—most shops have far too many machine tools for no better reason than that when the shop was originally built, greater numbers of locomotives were going through the shop; locomotive parts did not have the service life that they now have, and the machines themselves did not have the productive capacity of present-day machines. How, then, can a railroad justify the continuation of a shop layout and a shop inventory of equipment that may be entirely unsuited to current and future needs?

The answers to these questions point definitely to the need, on practically every railroad, for a complete re-appraisal of shop facilities in the light of the job that is before us and a survey of such magnitude cannot be made a side issue on the part of personnel engaged in operating a railroad day by day. It is a full-time job for a specialized group and the expenditures involved warrant specialized study as a matter of protection.

In discussing plant management in a recently published book, "Industrial Management," the author points out that no two industrial plants are exactly alike and that physical arrangements will therefore differ, but that all require the application of common principles, the objectives of which are: economies in handling; lower costs of useful areas; minimizing of production delays; avoidance of unnecessary and costly changes once a layout is made; improvements in pro-

duction processes and methods; provision of a layout that permits meeting of competitive costs; and incorporation of safety into the physical plant as a part of the layout and organization.

These are fundamental principles that apply just as surely to a railroad repair shop as they do to any large industrial production plant. They might be said to constitute a check list that should be gone over in relation to every change that is made in the shop.

The next few years will be a vital period in railroad shop rehabilitation and if the roads are going to spend millions without benefit of good shop engineering and planning they can be certain that the results will be far from satisfactory.

Loaves and Fishes

The country's dining cars were comfortably adequate to feed peace-time travelers, but they are overstrained nearly to the bursting point now. Rationing, inexperienced help and a lack of sufficient dining cars have been the major causes of the deterioration in service but these formidable difficulties have been met. Even though the standard of service has deteriorated, the fact that the multitudes are being fed at all borders on the miraculous. The station restaurants too have been in similar straits as the result of overcrowding, inexperienced help and food rationing.

The Fred Harvey System, operating both dining cars and station restaurants, will serve as an example of a company which has had to meet both problems. In 1944, 33,000,000 meals were served by Fred Harvey, including nearly 7,000,000 meals served to members of the armed forces. In addition, nearly 6,000,000 sandwiches were sold by Harvey news agents on the trains. The difficulties of this catering job, particularly in these days of food rationing, are indicated by the following figures showing food purchased by Harvey in 1944: meat, 5,710,000 lb.; potatoes, 5,050,000 lb.; poultry, 2,400,000 lb.; flour, 2,160,000 lb. Other items of which more than a million pounds were purchased during the year include fish and sugar. The big butter and egg men supplied the system with 1,670,000 doz. of eggs, 490,000 lb. of butter and nearly 220,000 lb. of cheese.

Many Harvey station restaurants are situated in small towns in the West; for example, Ash Fork, Ariz., a railway district point with a population of less than a thousand. It is not at all uncommon to feed seven or eight hundred soldiers there per day in addition to hundreds of civilian travelers and railway employees. The relatively small staff formerly employed in the kitchen and restaurant would have fallen far short of adequacy for today's needs, even if it had not been diminished by the inroads of the draft. The older employees are working long hours under the Harvey tradition that "the trains must be fed."

In the small towns of the Southwest the regular staffs have been augmented by as many new employees as it has been possible to obtain. In addition, the regular employees have been assisted by scores of women volunteers, members of clubs, lodges and churches and wives of railway men who help feed members of the armed forces. In Ash Fork, for example, the wife of a colonel was observed working hard as a waitress, helping to feed several hundred privates and non-commissioned officers. These women are on call day and night, and in one city a college dismisses its young women students to assist whenever it is necessary to feed the passengers of a big troop train. Some of the small dining stations have been called upon to feed 2,000 soldiers in a single day, and during one 24-hour period more than 5,000 members of the armed forces were fed in the Los Angeles station restaurant.

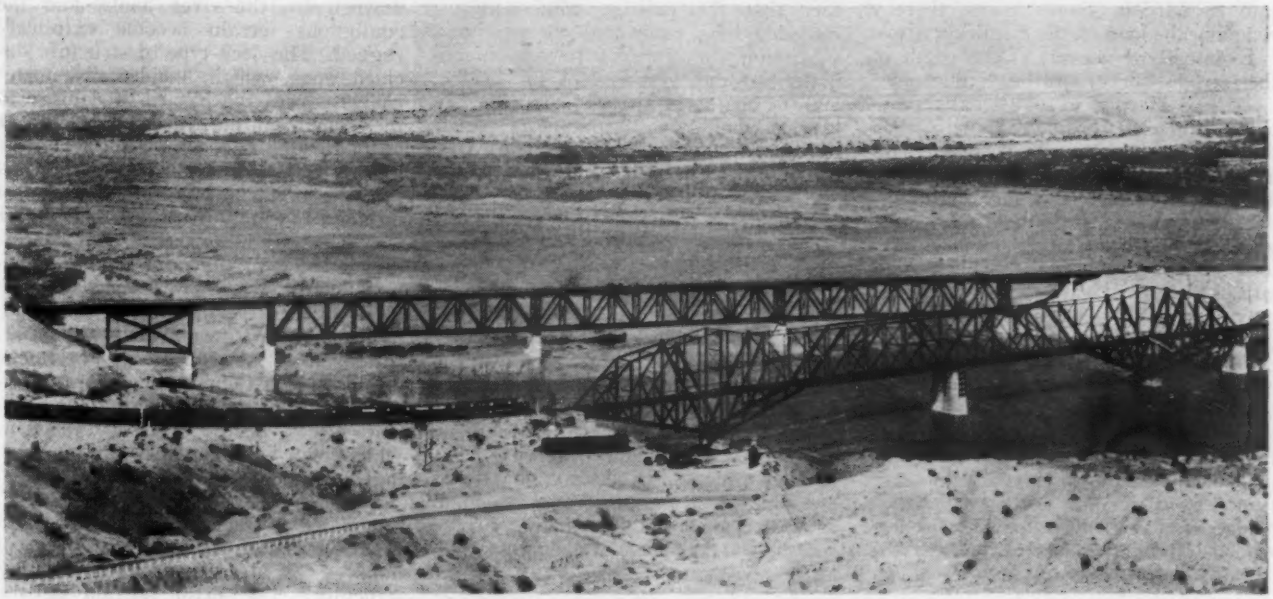
These figures are indicative of the huge job the railways in all parts of the country are doing in "feeding the trains." Under the circumstances, there has been no way of keeping the quality of service in dining cars or station restaurants at its former high level or anything like it. The traveling public has been patient but in peace-times the prospect of a well cooked meal leisurely eaten played an important part in attracting passengers to trains. Just as soon as conditions permit and before passengers have the opportunity of getting back into their private automobiles, dining car and station restaurant service should be improved to show millions of passengers who had never eaten in such places before the war how attractive the service is under other than the present adverse conditions.

Short Loads

Because, for one reason, of the fact that a wide variety of civilian goods has been available only in small quantities, a number of railways have found themselves deluged with less-than-carload freight. The freight house workers recruited during wartime are inexperienced and the number even of such workers that can be recruited is far less than the need. The combination of all these circumstances, plus rigid adherence to O. D. T. Order No. 1 requiring maximum loading of merchandise cars, has affected l.c.l. operations everywhere, with unhappy consequences in many places.

Even though O. D. T. Order No. 1 frequently required the holding of cars under partial load and thus cost many lost car-days, it is generally admitted that this order was timely and necessary. However, Special Permit O. D. T. No. 1-1837 which became effective on April 25 is also a necessary step because of present conditions. Under this permit the railways may now ship closed freight cars containing only five net tons of merchandise freight when such freight is destined to points within the grain loading territory, or when cars are loaded direct to destination, by-passing all regular transfer stations, if such cars are moving in the direction of empty car movement to or toward the grain loading territory.

Operations under this special permit should be studied carefully since its terms, when properly applied, should have a double-barreled effect for the good of war-time railroad transportation. Its utilization will improve service to less-than-carload freight and, at the same time, will funnel cars into grain territory where they are badly needed.



Looking Northeast from the California Side of the River, Showing the Old Bridge in the Foreground and the New Structure in the Background

Bridging the Colorado River Is Big Job

Santa Fe replaces existing single-track structure of inadequate load capacity with modern double-track bridge, thereby speeding transcontinental war traffic

UNTIL recently subjected to severe speed restrictions when crossing the Colorado river, transcontinental trains of the Atchison, Topeka & Santa Fe are now speeding over this river without pause in fulfilling their mission of carrying a large share of the east-west burden of war traffic. This has been made possible by the recent construction over the river at Topock, Ariz., of a new double-track bridge of outstanding characteristics, which replaces a 55-year-old single-track structure that, in its load-carrying capacity, had long since been outdistanced by the increasing weights of locomotives, with the result that it had become a weak link over which all trains had to move at greatly reduced speeds.

Beyond these considerations, the new bridge is of interest because it represents a major engineering undertaking, measured not only by its size, but also by the construction difficulties encountered. Among the more important of these is the fact that, because the river bed consists of highly unstable material extending to a considerable depth, it was necessary at one pier to go to a maximum depth of 123 ft. below normal water level, requiring that special dispensation from state authorities be obtained to work "sand hogs" under the air pressure required at this depth. Another interesting aspect of the project is that it involved a substantial raise in the track-level across the river, thereby enabling the west approach tracks, which formerly occupied low ground along the river for several miles, to be relocated at a higher elevation on a greatly improved alinement.

Historical Background

Construction of the new bridge at Topock represents the culmination of a long struggle between railway engineers and the treacherous Colorado at this general location, where the river forms the boundary line between the states of Arizona and California. This struggle had its beginning in 1883 with the construction of the original bridge several miles west, or upstream, from the present bridge site, where it was about 2½ miles east of Needles, Cal. Because of their location on relatively low ground, the bridges at the original site, or parts of them, were washed out repeatedly, resulting in frequent interruption to service. Of incidental interest is the fact that the original bridge was a pile trestle structure with one timber truss span, and that in 1884, after being washed out, it was replaced with a structure embodying fourteen 80-ft. timber truss spans, a drawspan 172 ft. long and 26 panels of pile trestle.

Because of the difficulties experienced with the bridges at the original location it was decided in 1887 to build a new bridge at a more suitable location about 10 miles downstream from the original structure. Completed in 1890, this bridge, located at Topock, continued to serve as the river crossing for the Santa Fe at this location for the next 55 years, being the one that has now been replaced.

The bridge built in 1890 was a notable structure in its own right. Constructed of steel and wrought iron, it was a single-track through-truss bridge of cantilever design, on which a gauntlet track arrangement was installed in 1923 when this territory was double-tracked. This bridge was 1,110 ft. long, including a 990 ft. cantilever through truss span and a 120 ft. plate girder viaduct approach. The suspended span was 330 ft. long with anchor and cantilever arms, each 165 ft. in length. While entirely adequate to the operating conditions prevailing at the time it was built, the cantilever structure eventually became outmoded by the introduction of progressively larger and heavier locomotives. For this reason it was necessary repeatedly to strengthen the bridge by various means and expedients which included, in 1910, the construction of a pier under the center of the 330-ft. suspended span, and the revamping of certain members of this span to convert it

into two 165-ft. simple spans, thereby reducing the load on the cantilever arms.

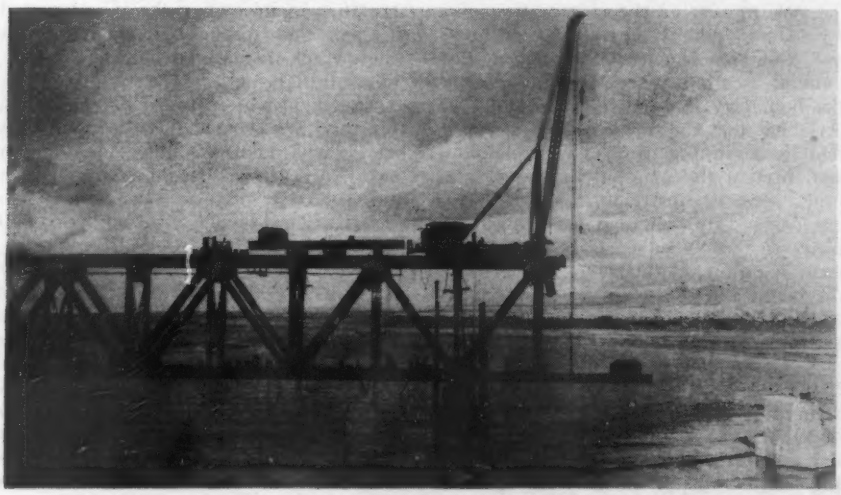
Eventually, however, as the result of the introduction of still heavier locomotives, and in spite of additional repairs to the bridge, it became evident in 1939 that steps would have to be taken with a view to strengthening the existing structure even further or building a new one. After a series of studies and tests, which included measurements of live-load stresses in the truss members with strain gages, it was decided that the only practicable solution would be to replace the old structure with a new bridge. From these studies it was concluded that further strengthening of the old bridge to accommodate present-day loadings would be so difficult as to be impracticable, but that even if this could be accomplished it would mean the continuance in service of a single-track bridge in heavy-traffic, double-track territory. Another consideration was the fact that the existing alinement included a long compound curve with a maximum curvature of 10 deg. immediately at the west end of the bridge, and to maintain the old structure in service would have meant the perpetuation of the speed restriction imposed by this curve.

Factors Influencing Design

Plans for the new bridge at Topock were influenced by several basic considerations. One of these was the fact that the most desirable location for the new bridge was in the general vicinity of the old structure where the river is confined within relatively narrow limits between high banks that afford suitable approaches. Here the river is about 1,250 ft. wide and has a maximum depth of about 25 ft. A short distance north, or upstream, from the existing bridge site the river widens out abruptly, while downstream the river banks and the contiguous terrain become extremely rugged. The deck type of structure decided upon, which, incidentally, materially reduces the hazard of damage to the structure in the event of a derailment on the bridge, called for a higher grade line to comply with clearances specified by the Secretary of War from low steel to normal water. Still another factor was the desirability, because of continuing erosion of the river banks, of removing the tracks for some distance west of the river from their existing location on low ground to a higher location. Also, the relocation of the tracks on this side of the river would afford an opportunity to correct certain undesirable aspects of the original alinement, which included the sharp curve immediately at the west end of the old bridge.

Bearing these considerations in mind, a new double-track bridge was designed for construction at a location several hundred feet upstream from the existing structure. The main portion of the bridge consists of three 350-ft. deck Warren trusses with subdivided panels, which are flanked at the east end by a 100-ft. deck-girder span and a 50-ft. beam span, and at the west end by three 100-ft. deck-girder spans, the total length being 1,506 ft. The entire structure is carried on concrete abutments and piers, the foundations of which extend to bed rock.

General View of the Substructure Work from the West Bank, Showing the Construction Trestle with Its Three Cranes



One of the Main Spans in Process of Erection Just After the Work Had Passed the Falsework Pier

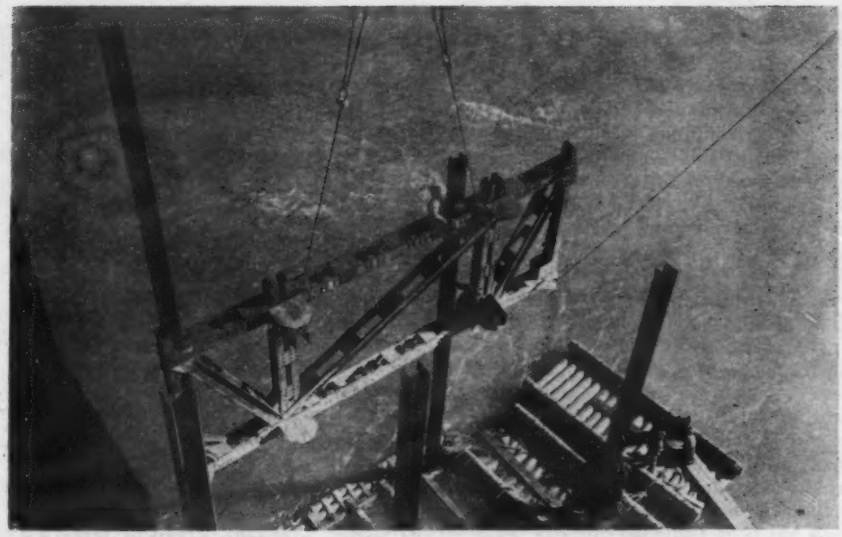
The Substructure

The design of the substructure for the new bridge was predicated on the fact that, to reach solid rock, it would be necessary to sink the foundations through a considerable depth of unstable river-bed material consisting, from the top down, of layers of inorganic silt and fine sand, fine to medium sand, and fine to coarse gravel, with bed rock being immediately overlaid by strata of large boulders and gravel. This situation indicated the need for employing the pneumatic method in landing the foundations on bed rock, and the substructure was designed accordingly.

Both abutments and the seven piers, which are numbered consecutively from east to west, are each supported on two reinforced concrete cylinders. The cylinders range in diameter from 14 ft. to 24 ft., and the center-to-center spacing of each pair ranges from 24 ft. to 39 ft. Each cylinder was provided with a dredge well opening, having an inside diameter of 8 ft. At the bottom of each cylinder the dredge well was beveled out to provide a working chamber. Steel cutting edges six inches wide were provided at the lower ends of the cylinders.

The cylinders in the east abutment and in Pier 1 were sunk by open excavation to final position. At all other pier locations, and at the west abutment, they were started down by open excavation, after which they were put under air pressure for the remainder of the distance. To assure a firm bearing, all cylinders were carried down to a level 2 ft. below the lowest point of contact

with the rock, after which holes were drilled to an additional depth of 10 ft. or so, to make certain that the cylinder was not resting on a shallow layer of rock strata. After each cylinder had been sunk to final depth, it was sealed. The seal concrete, placed while the cylinder was under air, filled the two-foot deep key, the working chamber section and extended some distance up into the dredge well. The remainder of the dredge well was then filled with concrete after the air locks were removed. The cylinder walls are constructed of 3,000-lb. concrete and the seal concrete was designed for a strength of 2,000 lb. At all of the five piers located in the river, the tops of the cylinders are at an elevation of 7 ft. above normal water. The cylinders of these piers are connected at the top by a concrete tie wall 10 ft. deep. Above the tie wall the two cylinders at each location are spanned by a concrete pier, both the upstream and downstream ends of which are pointed.

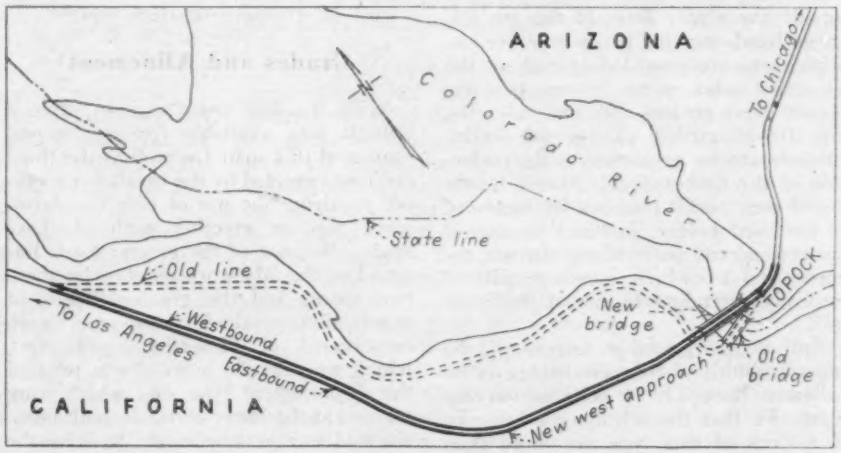


Lowering One of the Stiffener Frames in Place During Construction of One of the Falsework Piers Used Under Two of the Main Spans

Construction Methods

A distinction claimed for Pier No. 3, which extends to a depth of 123 ft. below normal water level, is that it is believed to be the deepest pneumatic pier in the United States. This pier is located in about the deepest part of the river and is approximately 500 ft. from the Arizona bank. The extreme depth of the cylinders at this pier required the use of an air pressure of 52 lb. per sq. in. in sinking them. Since this was 2 lb. above the limit permitted by state regulations in Arizona, it was necessary for the contractor to obtain special permission from the Arizona Industrial Commission to use the pressure needed. Under this pressure the working shift for "sand hogs" was limited to 30 min.

To assist in the construction of the substructure a low-level timber trestle was built across the river from the east bank. For handling concrete and excavated material to and from the cylinders, three cranes were employed, which operated on the trestle. Two of them, which were used intermediately on the trestle, were of the full-revolving self-propelled portal type, and to permit freedom of movement they were each mounted on a broad-gage track. The third crane, which was not of the portal type, was used largely at the west end of the trestle.

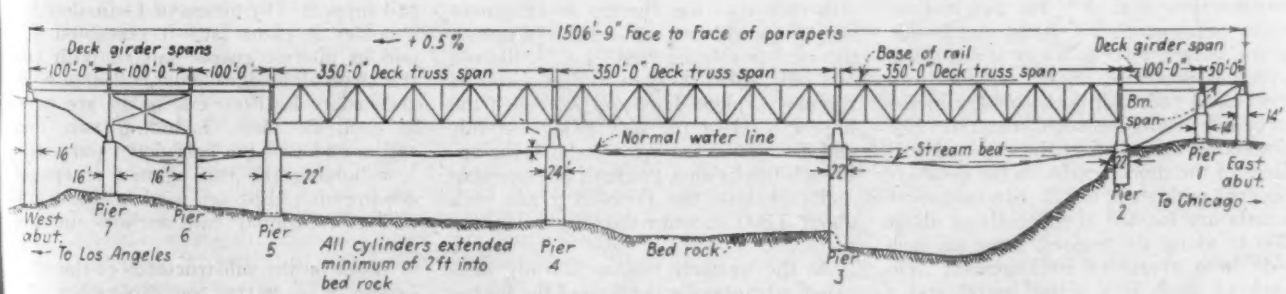


Plan of the River Crossing Showing the Locations of the New and Old Bridges and the Change in Alinement on the West Side of the River

Concrete for the cylinders and piers was supplied from a central batching and mixing plant located on the east bank and was hauled out onto the trestle in buckets carried by a narrow-gage railway which operated between the legs of the portal cranes. By means of the cranes operating on the trestle it was possible to handle concrete to all parts of the substructure except the west abutment. The concrete for this abutment was hauled to the westerly end of the trestle and then transferred to final position by means of a crawler crane operating on the west bank. Compressed air for the caisson work was supplied from steam-driven air compressors located on the east bank.

Features of Trusses

Designed to carry Cooper's E-72 loading, the trusses comprising the main spans are 46 ft. center to center of



Elevation of the New Bridge and Profile of Solid Rock, Illustrating the Depths of the Two Cylinders at Each Pier

chords and are spaced 28 ft. apart, measured center to center of trusses, with the two tracks on 14-ft. centers. The trusses are of riveted construction and, except for a number of special features, are of conventional design. One unusual feature of design is that, in the built-up members of the trusses, the legs of all angles are turned inward so that smooth exterior surfaces are presented. Also, wherever lacing bars would ordinarily be used, continuous cover plates with perforations are employed. The perforations in these plates are elliptical in shape and are 12 in. by 18 in. in size. Such plates, it is reasoned, present a better appearance and give added structural strength.

Also worthy of mention is the fact that, to facilitate inspection of the trusses and floor system of the bridge, a longitudinal steel catwalk with hand rails has been provided midway between the trusses at a level about 9 ft. below the base of rail. Connecting the catwalk at intervals of about 100 ft. are ten cross walks that extend about 4 ft. 6 in. outside the center lines of the trusses. Large hand-operated pump-type fire extinguishers are provided at each of the ten cross walks on the trusses, two under the west girders and one under the east 100-ft. girder. These fire extinguishers are for protection to the underside of the timber deck. Access to the top of each pier is obtained by means of an enclosed ladder, fastened to one of the vertical end posts of the trusses, the upper end of which connects with a walkway extending to one of the cross walks.

Still another notable feature of the superstructure of the new bridge is its ballasted deck. It is believed on the Santa Fe that the advantages inherent in a deck of this type are more than sufficient to offset the increased initial cost. It is reasoned, for instance, that, with a ballasted deck, the tracks on bridges can be maintained to the proper surface with the regular track forces, that derailments cause less difficulty, and that better riding track is obtained with less noise.

Erection of Superstructure

On the trusses and beam span the deck floor consists of 6-in. timbers, while on the girder spans the floor is of 10-in. timbers. To permit the deck floors under the two tracks to move independently of each other they are of separate construction, with a 1-in. longitudinal space between them. Along each side of the deck a 2-ft. walkway is provided, which is protected on the outside by a steel hand rail. All deck timbers in the structure are of creosoted material. For protection against fire, the exposed surfaces of the timber curbs on the deck are covered with sheet metal. Six motor-car setoffs are located at intervals of about 200 ft. along the trusses, three on each side in a staggered arrangement. On each of these is a water barrel and a sand barrel for protection against burning track ties, the only exposed timber on the deck.

In contrast to the substructure work, the erection of the superstructure was carried out from the west end of the bridge, which meant that the tracks of the west approach had been laid at the time the erection work got under way. This work was carried out with the aid of a traveling stiff-leg derrick having a boom 105 ft. long while handling the girder spans, and 90 ft. long while erecting the truss spans. The placing of the three 100-ft. deck-girder spans at the west end, which was the first step in the erection procedure, was a relatively simple matter. These spans, it will be noted from the accompanying drawing, are supported on the piers by means of steel bents, two of which are tied together by bracing. Because of the lack of a suitable tieback, the first truss span from the west end had to be erected as a simple span, requiring that falsework be placed at each main panel point. This falsework consisted of timber-pile piers, to which the load was transmitted by means of grillages of steel beams.

Grades and Alinement

With the first truss span in place a tieback was available for the second span, and this span (as well as the third one) was erected by the cantilever method, requiring the use of only one falsework pier in erecting each of these spans. Because of the greater loads imposed on the falsework piers under these two spans, and the greater depths of penetration required, these piers were constructed of H-section steel piles, which were boxed in to obtain piles of the displacement type, and which were pointed at the lower ends. In both falsework piers it was necessary to drive the piles to a maximum depth of about 70 ft. below the water level. At each pier the piles were placed in two bents of 20 piles each, with the piles in each bent being driven in two groups of ten each with the aid of a stiffener frame that was also used as a driving templet. When erection of the second truss span had been completed the piles comprising the falsework pier were pulled and reused in the construction of the falsework pier for the third truss span.

The deck of the bridge is on a grade of 0.5 per cent ascending westward. The increased height of the grade line over the old bridge is 25.8 ft. at the east and 33.3 ft. at the west end. The new bridge is so located with respect to the existing structure that the change in alinement at the easterly end was relatively minor, the new line being tied in with the old one only 2,050 ft. from the east end of the new bridge. However, to reach the higher level of the new bridge at this end it was necessary to establish the approach tracks on a grade of one per cent and to extend the raise in grade back about 1,800 ft. onto the original alinement.

At the westerly end, as already indicated, advantage was taken of the higher elevation of the bridge to relocate the approach tracks on higher ground on an improved alinement, the relocated section being about 4.5 miles in length. This new approach, which extends through rugged terrain, has a maximum grade against westbound traffic of 0.8 per cent and against eastbound traffic of 0.98 per cent. However, since the ruling grade in both directions in this district is approximately 1.4 per cent, the grades on the relocated line present no problem. A measurement of the improved alinement obtained is the fact that, whereas the old west approach contained seven curves ranging from 2 deg. to 10 deg., the relocated line contains three curves, of which the maximum is 1 deg. The saving in central angle is 327 deg. 41 min.

Aside from the river bridge, this project involved the installation of three grade separations over U. S. Highway 66, all of them simple, deck-plate girder spans on concrete abutments. These include a 46-ft. structure spanning the highway under the east approach, and an 80-ft. span carrying the new tracks across the old alinement near the westerly end of the new river bridge, which span will later serve as an underpass when the highway is relocated in connection with the conversion of the old railway bridge to a highway crossing over the Colorado. There is also a 60-ft. structure spanning the highway at another point on the west approach. In addition, there are four ballast-deck timber-pile trestles, ranging in length from 70 ft. to 126 ft., in the west approach. Smaller drainage openings on the relocated line generally consist of concrete arches of mass design since reinforcing steel could not be obtained.

Grading Heavy

Largely because of the broken nature of the terrain encountered in constructing the west approach, the grading required by the project was relatively heavy, including a total of more than 1,000,000 cu. yd. of roadway excavation. The grading was carried out by a highly-mechanized organization in accordance with modern practices. For instance, the fill material, consisting largely of sandy soil, was placed in layers eight inches thick and, after being sprinkled as necessary, was compacted with sheepsfoot rollers. Water for wetting the embankment material was pumped from the river.

Tracks for the approaches to the new bridge were constructed with 131-lb. rail supported by means of 14-in. double-shoulder tie plates on 9-ft. creosoted ties laid in pit-run gravel ballast, with the tracks on all bridges being ballasted with crushed rock. Four cut spikes are used at each tie plate, including two line spikes and two for hold-down purposes. For holding the rail against creepage, compression clips are used in one track and conventional rail anchors in the other.

Work on the substructures of the new bridge was started on November 16, 1942, and was completed on July 1, 1944.

Erection of the superstructure was undertaken on May 1, 1944, and was competed in February of this year. Regular train service over the new bridge was formally inaugurated on March 7, 1945.

Project Personnel

All phases of this project were carried out under the general direction of G. W. Harris, chief engineer, Atchison, Topeka & Santa Fe System. The construction work was under the immediate supervision of M. C. Blanchard, chief engineer of the company's Coast Lines. R. A. Van Ness, bridge engineer of the system, was in general charge of the design of the new bridge, and W. E. Robey, bridge construction engineer, was in direct charge of the bridge work in the field.

A. E. Walker was the construction engineer in charge of the field work on the west approach, and J. Morgan was construction engineer in charge of the work at the east end.

The substructure for the new bridge was constructed under contract by the Kansas City Bridge Company, Kansas City, Mo., while the superstructure was furnished and erected by the American Bridge Company, Pittsburgh, Pa., which also inserted the steel for the girder span near the west end of the river bridge. The Sharp & Fellows Contracting Company, Los Angeles, Cal., did the grading work for the west approach and also constructed the concrete arches and the timber trestles in this section, and poured the concrete for the substructure of the 60-ft. girder span. The A. S. Vinnell Company, Alhambra, Cal., did the grading work for the east approach, and the Morrison-Knudsen Company, Inc., Boise, Idaho, built the substructure for the girder span immediately at each end of the river bridge and also set the steel for the bridge at the east end. All trackwork required by the project was performed by company forces.

General Gray Writes to American Railroaders About the 716th Ry. Op. Bn.

Brigadier General Carl R. Gray, Jr., director general of the Military Railway Service, has addressed the following open letter to all American railroad men:

A. P. O. 887
24 April 1945

To: The Railroad Men, Their Families and Friends.

American railroad men who are charged with the safe and on-time delivery of millions of tons of freight each year are fundamentally honest and devoted in their attention to duty. It is their job to see that the receiver of the freight gets it in perfect condition and on time.

I cannot understand how, with their background, members of the 716th Railway Operating Battalion could have strayed so far from the principles which they have always stood for, unless, perchance, the accused were in reality men without railroad experience or background, but simply a cross-section of American citizenship drawn into the Army by induction, a proportionate number of which were assigned to the Military Railway Service units. I just cannot feel a group of railroad men had gone wrong to the extent that the reports from the trials and convictions seemed to indicate.

The railroads of America actually crippled themselves to give us experienced officers and a great many experienced enlisted men. In order to have the necessary railroad experience, most of these officers and men really had to be above Army age. Many of them served in the last war. Now with particular reference to the 716th Railway Operating Battalion, this Battalion is composed of 887 officers and enlisted men; only 349 of these were even questioned and 160 brought to trial, of whom almost one-half had had no railroad background. Those with railroad background who were brought to trial represented only three-tenths of one per cent of the total strength of the Military Railway Service in this theater. Of the twenty-two men tried and acquitted, seventeen had railroad background.

One of the men convicted and sentenced to a long term was from my home town, St. Paul, and reports from St. Paul indicate that this man was not a railroad man and that he had a police record before he went in the Army. I have not had a chance to check up on the previous record of some of the others, but I do know that it was most unfortunate, and, to me, definitely misleading that the 716th Railway Operating Battalion's name seemed to be used each time there was a conviction in connection with these black market operations, even though the man sentenced did not belong to the 716th Railway Operating Battalion.

I have no brief for a thief, but I have lived among railroad men all my life and know them to be fundamentally honest. The thing that I want the American public to understand is that neither this Battalion nor any of the American railroad men in the 67 units, and over 30,000 men, are thieves. They are conscientious rail transportation men who are as much interested in getting the supplies to the soldiers in the front lines, their consumers, safely and on time, as they ever were back on a commercial railroad in the United States, where their bread and butter depended upon a continuation of that kind of service.

I have talked to too many of them and they look upon their responsibilities here and to their Big Shippers—the Services of the Army—and their consumers—the Soldiers in the front line trenches—with a higher degree of service standards than they have on the most competitive commercial railroads back home. In the United States their jobs depended upon successful, safe and on-time rail transportation. Over here, they know that their future, the future of their families, the future of their country, in fact, the future of the world, requires the same dependable rail transportation service for the Armies that they have always given the shipping public of the United States. They have given that unstintingly.

They know no 16-hour laws over here. An Engineer will work on a track if necessary, and a Conductor will help build bridges, while the "Gandy-Dancer" will try to run a locomotive if there is no Engineer available. They are not thieves and they are not criminals, but they are American citizens with a pride and a love of their industry and their work, a mature realization of their responsibilities, and a devotion to duty that has been superb. They are pushing forward tens of thousands of tons of freight a day to their comrades in arms, the men of the Armies they are supporting, and I just cannot stand idly by and let an impression go unchallenged that they have so completely forgotten their American railroad standards and principles, as well as their American ideals, as to be guilty in other than a very small degree of the whole black market operations, which fortunately have been nipped in the bud in time.

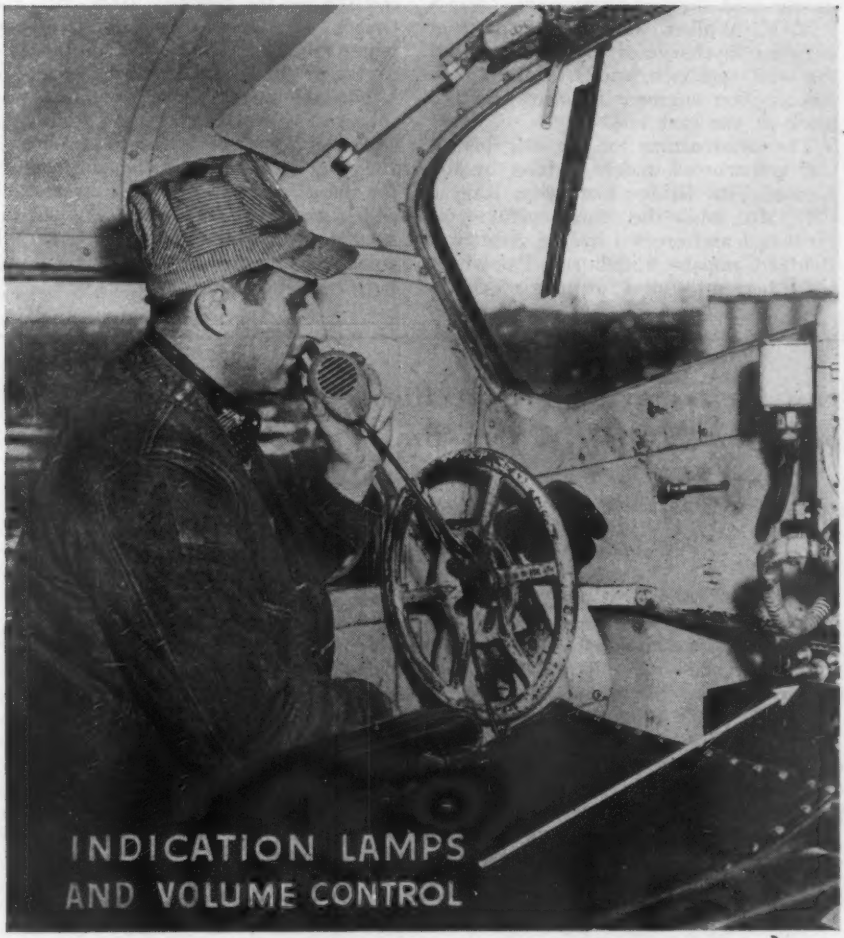
To the everlasting credit of the 716th Railway Operating Battalion and to the other Battalions and units of the Military Railway Service in this theater, all of these men have gone steadily forward in doing their job of railroading for the Armies. Their morale is excellent and the 716th Railway Operating Battalion has just passed a rigid inspection with an excellent rating. The 716th's Bulletin of March 24th states, "The end of March is nearly here and still no venereal disease in the 716th." This indicates to me that they are good, solid American railroad men, that they still have confidence and faith in themselves, in their unit, in their railroad industry and in America, and will not permit exaggerated and false accusations about them in any way to lessen their attention and adherence to duty, nor "slow them down" in doing their share of moving the freight forward to the Armies.

With kindest regards,

Sincerely yours,
CARL R. GRAY, JR.
Brigadier General, USA
Director General.

One Year of Train Communication Tests on the Rio Grande

Comments on the use of various forms of modulation, types of antennae, frequencies and power on caboose



Engineman in Cab of Locomotive Using Close-Talking Microphone Which Excludes Local Noises

By W. W. PULHAM

Superintendent of Communications
Denver & Rio Grande Western

TO the uninitiated, radio communication between the engine and the caboose on freight trains might seem a relatively simple facility to install. The Rio Grande, however, after testing and experimenting for a year, has found and is now coping with many problems which must be overcome before we can have 100 per cent communication between the engineer and conductor, and at the same time not interfere with other proposed radio services. Some of the problems presented are the result of difficult terrain over which our railroad operates between Denver, Colo., and Salt Lake City, Utah.

There are 50 tunnels in the 570 miles of main track between these two terminals, ranging in length from 100 ft. to 6.2 miles (Moffat tunnel). Thirty of these tunnels fall within 35 miles, on part of the 129-mile stretch where the Rio Grande operates over the Denver & Salt Lake trackage on the Dotsero cut-off route. In addition to these obstacles to communication, there are cuts, winding canyons, and extremely rugged terrain. On the other hand, between Grand Junction, Colo., and Helper, Utah, the railroad passes through relatively flat, open country. One of our biggest problems becomes that of having sufficient power to overcome extreme attenuation in the mountainous country, and at the same time not so much power that too great a distance is covered in open country, which would tend to create a congestion of air traffic and consequent interference with other proposed services.

Started Test in April, 1944

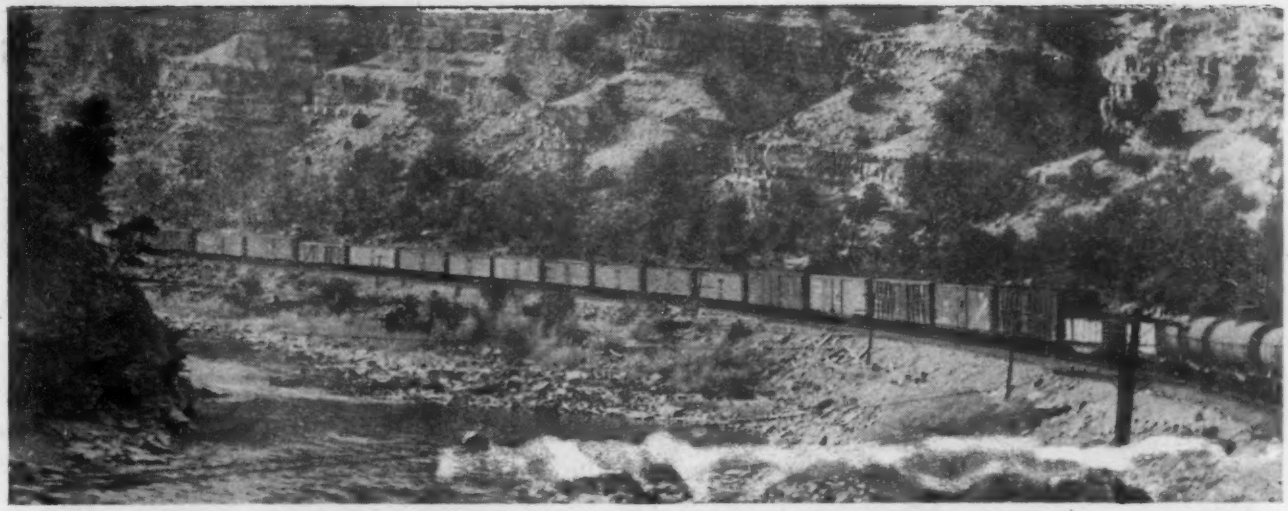
We made our first test run early in April, 1944. At that time, police emergency radio equipment was used, operating in the 30-40 mc. band, frequency modulated, and with a power output of 60 watts. The installation was made on a fast freight train of 65 cars out of Denver, and increased to 85 at Grand Junction. It was estimated by the train crews that the time saved in closing switches, stopping to cut out a bad order car, release of sticking brakes observed by the rear end, highballs from the rear, and overall operating handled by radio, amounted to approximately 3 hours from Denver to Salt Lake. Communication was maintained continuously except in the Moffat tunnel and in two of the longest minor tunnels. Several problems were disclosed, however, that would have to be solved before we were ready for regular installation. In the first place, it was improbable that the F. C. C. would be able to give us a license in the 30-40 mc. channel. We had reason to believe that the power was too great for open country work, and we failed to obtain communication through all the tunnels. Another major problem was that of supplying cabooses with suitable and adequate power for the operation of the radio equipment.

Various Other Tests Made

Since that time, many test runs have been made with a number of different types of equipment to determine what type of modulation, transmitter power, type of antenna and radiation, receiver sensitivity, and frequency would be best suited to do a satisfactory communication job from engine to caboose.

We have used amplitude modulation, frequency modulation and phase modulation; we have operated in the 30-40, 117, 156 and 2,700 mc. bands; we have used power ranging from 6 watts to 60; and have experimented with a number of antenna types from a simple ¼ wave-to-ground to intricate arrays. In addition, we have studied various types of power supplies for the cabooses.

In only one test have we successfully



Typical of the Terrain Encountered by the D. & R. G. W.

obtained communication through the Moffat tunnel. This was with 15-watt phase-modulation equipment operating in the 2,700 mc. band. A multiple-driven antenna array was used which gave us a low radiation pattern 360 degrees in extent. It is believed that the tunnel acted as a wave guide in this instance which resulted in a stronger signal being received inside the tunnel than in open country transmissions. This performance would indicate a promising future for this frequency, but at the present time this type of equipment has not been developed on a commercial basis.

AM Versus FM

A decision between the use of AM and FM has become a problem. Both types are free from man-made static in the very high frequency range. The use of FM tends to give one station preference over a station somewhat further away from the receiving station, thus blocking out the latter. This is not true with AM, and there is a question whether this would be an advantage or disadvantage in railroad service.

Our studies have indicated that a radiating power of not over 25 watts combined with a high-gain receiver should be adequate for our main line end-to-end service. A number of types of antennae do a very satisfactory job, especially those that are non-directional and radiate at a low angle. It is believed, however, that still more improvement can be made along this line, and we are continuing with our experiments in antenna design.

Power on the Caboose

The problem of power for cabooses has proved to be an interesting one, and there are two schools of thought on the subject. One favors the axle-driven generator type, similar to that used on passenger cars, except on a smaller scale. The other believes the internal combustion engine-driven generator to be the better of the two types of power. We are studying both kinds of power from the standpoint of initial cost, maintenance cost, out-of-service time, dependability, and amortization time. For the benefit of those who are skeptical of the engine-driven power, we can certainly commit ourselves to the extent that performance is very satisfactory and relatively trouble-free. We have operated one unit for more than 500 hours with one spark plug failure being the only trouble encountered. Inasmuch as the engine is a two-cylinder horizontally opposed type, the remaining cylinder continued to operate the generator for five hours until a terminal was reached, and no power failure resulted. Communication was maintained with no apparent loss of power.

Studies also are well under way on the Rio Grande for train-to-station communication by radio. It is planned to operate from fixed stations with an antenna in the most advantageous point that is practical with remote control, if necessary, to the operations office. In open country this should be relatively simple. In the mountainous area, it is anticipated we will probably find that numerous relay stations will be required to carry the communique the required distance from trains to the station.

On April 17 we conducted a test of train-to-station two-way radio telephone equipment, operating between a station in the Rio Grande building in Denver and a freight train. Conversation was satisfactory not only while the train was in the yard at Denver but also while it proceeded for a distance of approximately 30 miles into the mountains west of Denver en route to Salt Lake City.

The Loud Speaker and Control Box Are Mounted on the Same Panel with the Air Gage in the Caboose

C. R. I. & P. Steam Power Breaks Records

110 new and rebuilt locomotives equipped with roller bearings prove important factor in handling traffic, increasing monthly mileage and cutting repair costs

THE successful handling of present record passenger and freight traffic on the Chicago, Rock Island & Pacific, from a motive-power standpoint, has been made possible by the addition within the last two years or more of 19 new passenger Diesels, six 5,400-hp. freight Diesels, eleven 1,000-hp. Diesel road switchers, ten new steam locomotives, and also, to a great extent, by the rebuilding and modernization of 100 steam locomotives.

This new and rebuilt steam power includes ten heavy modern Class R-67 locomotives, Nos. 5100 to 5109, inclusive, received from the American Locomotive Company in 1944; 64 Class R-67-B locomotives, Nos. 5001 to 5064, inclusive, purchased in 1929 and subsequently thoroughly rebuilt and modernized at the railroad company's shops; 18 Class M-50-A locomotives, Nos. 4044 to 4061, inclusive, similarly rebuilt; 18 Class K-67-B locomotives, Nos. 2689 to 2713, not inclusive, also rebuilt and modernized. All of these locomotives, constructed originally by the same builders, are now equipped with Timken roller bearings and other modern improvements. The first two classes mentioned are of the 4-8-4 type, the third being 4-8-2 and the fourth, or last, a 2-8-2.

The striking performance of this modern power, in conjunction with other Rock Island steam locomotives, in hauling passenger and freight trains on this road is indicated by the fact that traffic increased from 448 million passenger-miles and 6,642 million freight ton-miles in 1939 to 2,447 million passenger-miles and 14,215 million freight ton-miles in 1944. In other words, freight traffic increased over twice and passenger traffic over five times, this record-breaking business being handled, as a matter of fact, with a smaller total locomotive inventory, owing to the retirement of a number of small, obsolete locomotives.

5100-Class Oil Burners

Not only did this modern steam power demonstrate its ability to keep trains rolling, but a number of highly desirable operating objectives were attained at the same time. The monthly mileage of certain classes of locomotives increased to 12,000 and some individual locomotives exceeded 17,000 miles. Annual mileages increased to 100,000 and 150,000. Overall repair costs decreased about 6½ cents a mile. In general, this average tire life between turnings doubled and rod-bushing life increased, in some instances, as much as ten times, largely owing to the more accurate and permanent fixing of driving wheel centers through the application of roller bearings.

The ten 5100-Class locomotives are all oil burners, with a fuel capacity of 5,500 gal., and a water capacity of 21,500 gal. Each locomotive and tender, coupled, has an over-all length of 108 ft. 10 in., and a total wheelbase of 95 ft. 11 in. Other dimensions and weights were given in a descriptive article published in the *Railway Age* of August 26, 1944. Roller bearings are used throughout on engine truck, driver, trailer and tender journals, and Multi-roll bearings are applied on the valve-motion pins. Other features include lightweight pistons and lip-type packing, multiple-bearing crossheads with single guides, steam-operated cylinder cocks and mechanical lubrication throughout. To minimize rail and equipment shocks in high-speed operation, special attention was paid to counterbalancing all driving wheels and cross counterbalancing the main wheels.

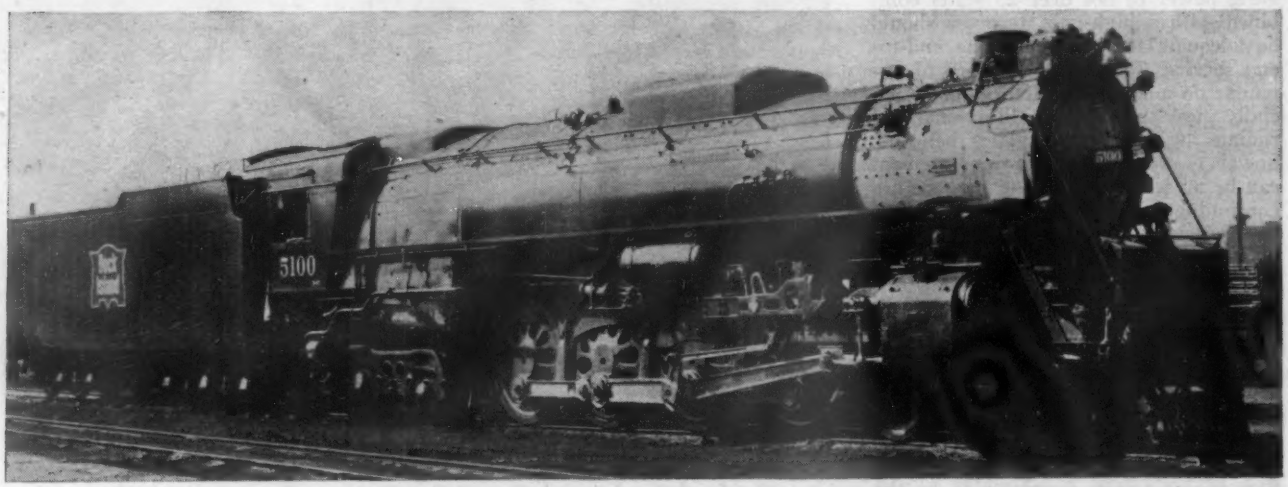
These locomotives are used over extended distances, such as the 520-mile run between Kansas City and Dalhart, Tex. In the month of January, 1945, a typical 31-day month, the minimum mileage made by one of these locomotives was 8,141; two locomotives made over 10,000 miles; one 16,714 miles, and one 17,261 miles. Up to January 31, one of the locomotives had accumulated a total of 85,077 miles in five months. The average cost of maintenance of all 10 locomotives since installation was 8.8 cents a mile.

5000-Class Modernized

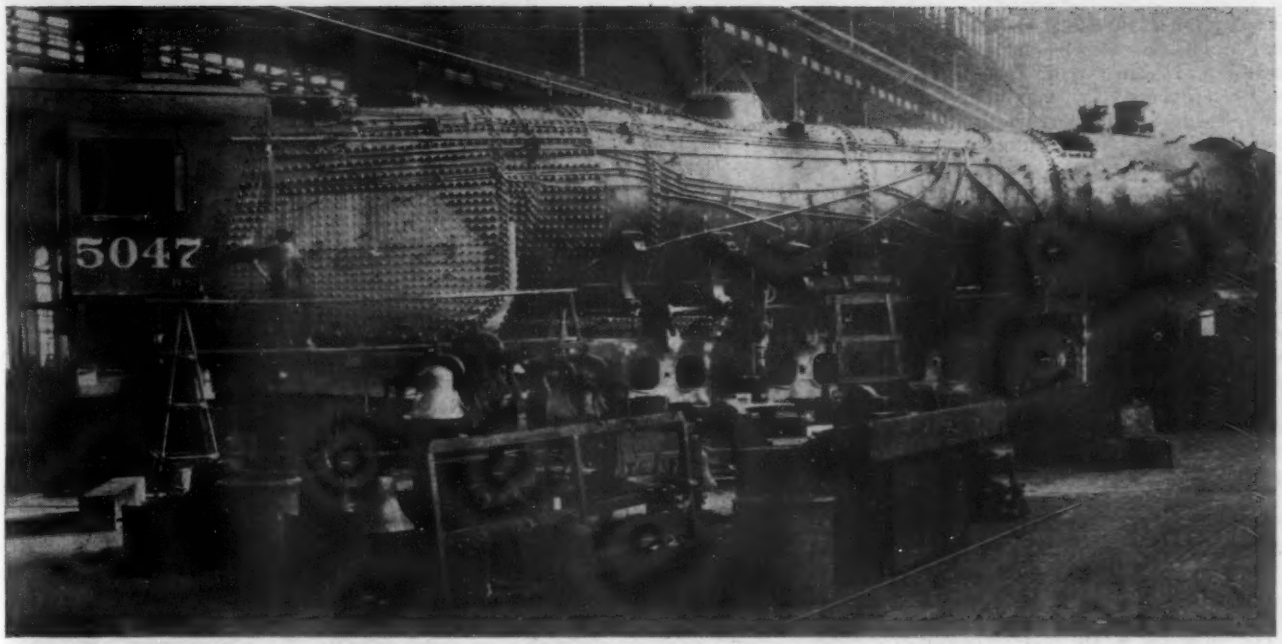
The Rock Island purchased the first 5000-Class locomotives, of which there were 25, in 1929.* These locomotives proved unusually successful in handling tonnage trains at high speed and 40 more were delivered in 1930. After a survey by the mechanical and operating departments, it was decided to equip these locomotives with roller bearings on all driving-wheel journals and to make certain other changes and improvements which would better adapt this power to meet the requirements of modern high-speed service.

Twenty-five of these locomotives were originally built with bar frames and 40

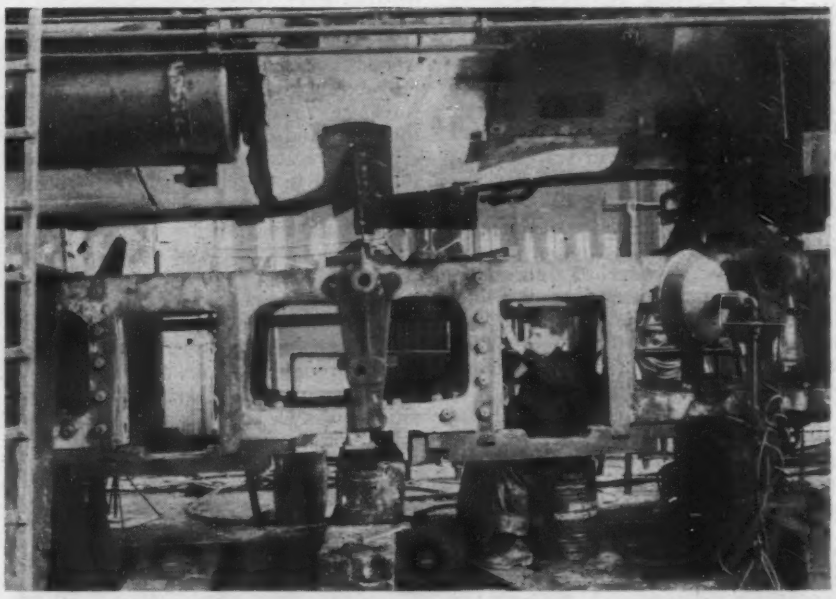
* See the *Railway Age*, December 7, 1929, page 1325.



One of the Ten New 5100-Class Steam Locomotives on the Rock Island



5000-Class Locomotive Undergoing Repairs and Modernization at Silvis Shops



Preparing the Frame Pedestal Jaws to Accommodate Roller-Bearing Boxes

with one-piece cast-steel beds. The driving-wheel diameter was increased from 70 in. to 74 in. to facilitate higher operating speeds and, with no change in cylinder size or boiler pressure, a decrease in tractive force was anticipated. Experience indicated, however, that the starting tractive force remained about the same owing to reduced friction of the roller bearings and an increased factor of adhesion.

Lightweight main rods and pistons, in conjunction with conventional crossheads, were applied to some of the locomotives and the remainder are now being equipped. The Baker valve gears were equipped with needle bearings at all major points and the valve events modernized. Force-feed chassis lubrication was supplied to all driver pedestal ways, feedwater pump, air compressors and guides in addition to the cylinders and valve chambers. The stack diameter was increased from 19 in. to 24 in. and the exhaust-nozzle diameter increased accordingly.

To facilitate longer runs, the tender capacity was increased from 15,000 to 20,000 gal. of water on all locomotives of this class, the rear portion of the tender being increased in height to make a larger tank. No change was made in the tender coal capacity of 20 tons, but, on 22 of the locomotives, equipped to burn oil, the fuel-oil tank on the tender was increased in size from 4,100 to 5,000 gal. The original six-wheel tracks had sufficient reserve capacity to carry the extra load and no change was made in them except to install larger wheels 36 in. in diameter.

The best monthly mileage secured with 12 of these locomotives on the Oklahoma division in January ranged from 4,600 to 8,680 miles. The average cost of repairs since the last general shopping was 22 cents a mile and in some instances these locomotives had made well over 200,000 miles since the last general repairs early in 1942. A check of the tire mileage on these locomotives indicates that before conversion they made from 45,000 to 50,000 miles between tire turnings. The provision of accurately fitted roller bearings and driving boxes tended to eliminate quarter slip and reduce wheel sliding with attendant substantial increase in tire life. The average mileage between tire turnings on 16 of these locomotives after conversion was 103,450 miles, as shown in one of the tables. Rod-bushing life also was definitely increased.

In addition to other mechanical improvements, the dome seams of 4000-Class locomotive boilers were reinforced, where necessary, in order to permit increasing the steam pressure from 200 to 220 lb., cylinders were bushed from 28 in. to 26 in. and a current program calls for the application of new cast-steel front bed sections. Roller bearings are applied to all drivers, engine-truck and trailer wheels, also within recent months to all tender-truck wheels.

Further 4000-Class Changes

Lightweight main and side rods were applied, also Timken hollow piston-rods and Timken-type crossheads with aluminum shoes and block-tin faces. Since steam passages in the original cylinders produced an improved area ratio to the new reduced cylinder size, the valve events were changed to give larger areas through the bushing ports and improved

efficiency for steam use at short running cutoffs. The new dimensions are as follows: lap, 1½ in.; lead, 7/32 in.; exhaust clearance, ⅛ in.; maximum valve travel, 8½ in.; steam port width, 2⅜ in. The maximum starting cutoff was reduced from that on the original locomotives but was kept within limits to maintain good starting characteristics.

In conjunction with the higher operating speeds made possible through changes in the valve events, and the reductions in dynamic forces due to the use of lightweight reciprocating parts and rods, including eccentric rod, the eccentric throw circle was reduced to 20 in., and a lightweight design of eccentric crank applied. To assure against lost motion in the valve-motion bearings, needle-type bearings were applied at all points except the rear-end of the eccentric rod and the crosshead connection to the union link.

Counterbalancing the 4000's

The original 4000-Class locomotives were equipped with heavy rectangular section rods, heavy crossheads with solid piston rods and a heavy design of piston with separate bull rings. The locomotives were balanced in the conventional manner, along the lines of 1915 A. A. R. recommendations, and the static overbalances at the various positions were as follows: No. 1 driver, 193 lb.; main, 485 lb.; intermediate, 325 lb.; No. 4 driver, 168 lb.

When the main wheels were replaced, without changes to the running gear of the locomotive, a wheel design incorporating a crossbalance along the lines of the A. A. R. recommendation at that time was applied, the balance block being located at an angle of advance to the center line of the crank arm.

When the locomotives were equipped with lightweight moving parts the reduction in revolving weights and reciprocating weights was of large magnitude and the advantages of reduced dynamic augment being apparent, the locomotives were rebalanced.

The main wheels were fully crossbalanced and the wheels other than main were balanced in the conventional manner, except that transverse out-of-plane forces were considered. Weights for the front and back end of the main and eccentric rods were determined from the center of percussion. The amount of reciprocating balance in the main wheel was added prior to final determination of the angle of advance of the counterbalance block.

The wheel counterweights were modified to produce the proper angle of advance and weight by means of tubed holes through the balance pocket. The overbalance provided at the various positions was as follows: No. 1, 138 lb.; main, 165 lb.; intermediate, 180 lb.; No. 4, 141 lb. The dynamic augment of the main wheel was reduced to 7,409 lb. at diameter speed.

Mileage Between Tire-Turnings—Rock Island 5000-Class Roller-Bearing Locomotives

No.	New tires applied	Class of repairs	Date turned	Class of repairs	Mileage
5001	Feb., 1942	3-F	Apr., 1943	5	107,500
5003	Oct., 1942	3-F	Dec., 1943	5	90,500
5006	May, 1942	3-F	Aug., 1943	5	104,800
5007	Jan., 1942	3-F	May, 1943	5	117,000
5009	Dec., 1942	5	Mar., 1944	5	100,150
5010	Sept., 1941	3-F	Jan., 1943	5	122,000
5012	Feb., 1943	5	Aug., 1944	5	139,500
5013	Nov., 1941	3-F	Mar., 1943	5	119,400
5014	June, 1941	5	July, 1942	3-F	79,000
5041	Aug., 1942	5	Nov., 1943	3-F	100,800
5042	Sept., 1942	5	Nov., 1943	3-F	98,000
5043	Dec., 1942	3-F	Feb., 1944	5	100,000
5045	Dec., 1942	5	Feb., 1944	3-F	87,200
5049	July, 1943	3-F	Oct., 1944	5	90,400
5053	Jan., 1943	3-F	July, 1944	5	109,000
5054	July, 1942	5	Oct., 1943	3-F	90,100
			Average miles made by 16 locomotives		103,450
			Average miles before modernization ...		50,000

Mileage Between Tire Turnings—Rock Island 4000-Class Roller-Bearing Locomotives

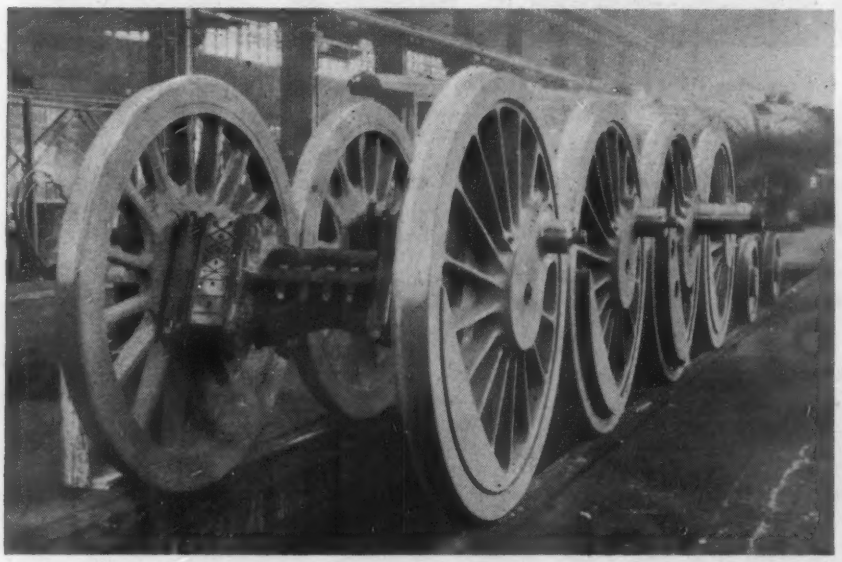
No.	New tires applied	Class of repairs	Date turned	Class of repairs	Mileage
4048	Dec., 1942	5	Dec., 1943	5	135,800
4049	Jan., 1944	5	Dec., 1944	5	123,400
4050	May, 1943	3-F	Aug., 1944	5	175,000
4051	Aug., 1943	3-F	May, 1944	5	110,000
4057	July, 1943	A-3	May, 1944	5	111,000
4058	Mar., 1943	3-F	Feb., 1944	5	122,000
4060	Nov., 1942	3-F	Oct., 1943	5	126,200
4061	May, 1942	5	Nov., 1943	5	165,900
			Average miles made by 8 locomotives		133,660
			Average before being modernized		75,000

Ten of the original 4000-Class, M-50 locomotives on the Rock Island division made from 7,000 to 8,400 miles a month in January and had an average cost of repairs of 21 cents a mile. Fifteen of these locomotives, converted to the M-50-A class and used on the same division in January, made 11,000 to 15,300 miles during the month and the cost of repairs was only 15.5 cents a mile or 5.5 cents less.

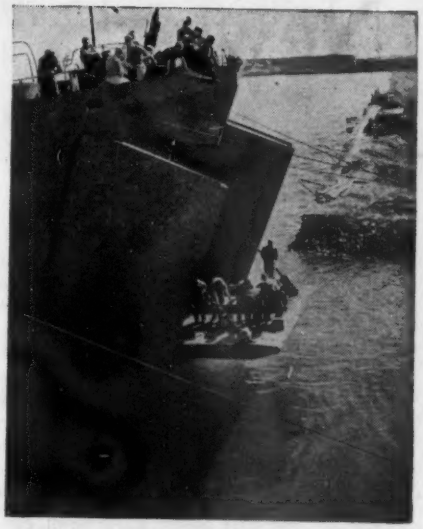
As regards tire mileage, a group of eight representative M-50-A locomotives averaged 133,600 miles between tire turnings, as shown in one of the tables, which may be compared with 75,000 miles before conversion. The accurately positioned driving wheels in conjunction with carefully quartered and stroked crank pins had the effect of increasing rod-bushing life. Whereas rod bushings sometimes had to be renewed after only 3,000 miles of service, bushings on the converted locomotives frequently ran up to three months or possibly 30,000 miles for the main rods and somewhat longer for the side rods.

A similar pattern of improvement was followed in the case of the K-68-B locomotives which had 28-in. by 30-in. cylinders and the boiler unchanged, but the steam pressure raised slightly from 210 to 215 lb., thus increasing the tractive force from 67,000 to 68,000 lb. Roller bearings were applied to the drivers and eventually will be to the engine truck wheels. The tender capacity was increased from 10,000 to 14,000 gal. of water. There was no change in coal capacity, but on 12 locomotives equipped to burn oil, the fuel-oil tanks were increased from 3,600 to 4,550 gal. New four-wheel tender trucks with 6½-in. by 10-in. journals were installed.

In general, the same experience as regards higher monthly mileage, reduced repair costs and increased tire and rod bushing life was shown, although possibly to a less extent, in the case of the 2600-2700 Class locomotives completing the improvement program.

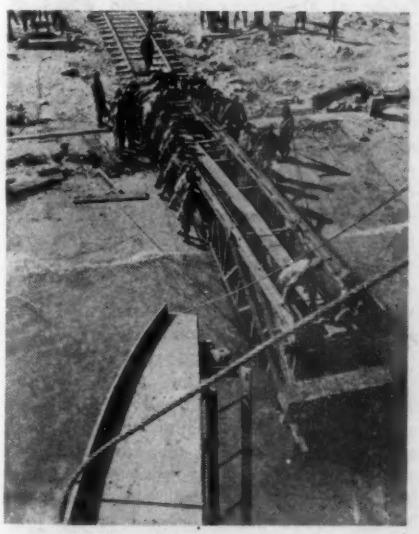


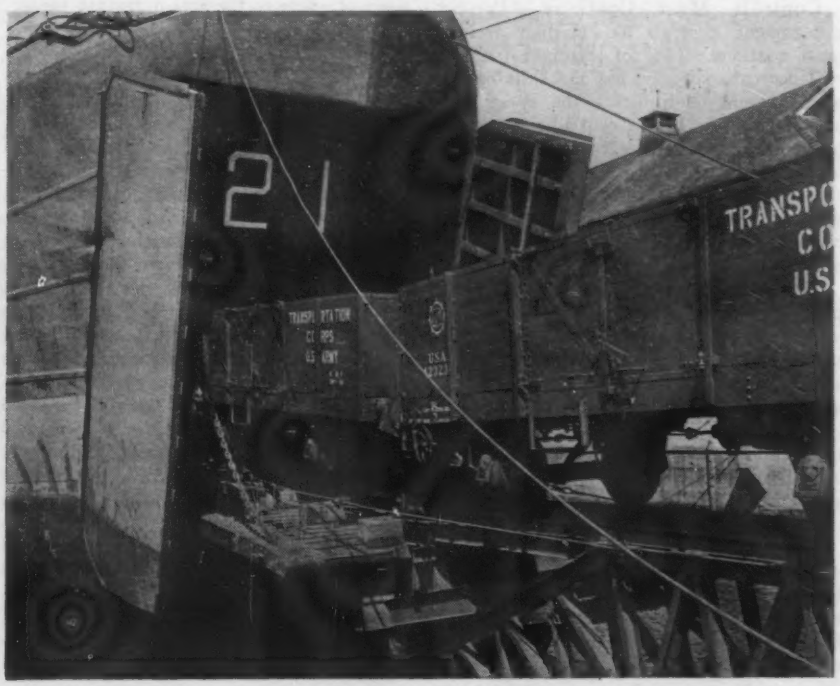
Driving Wheels with Roller-Bearing Boxes Assembled in Place Ready for Wheeling the Locomotive



Ferrying Railroad Equipment to France

From the Open Bow of a Coast-Guard-Manned Landing-Ship-Tank, Equipped with Track, Flat Cars of the Army Transportation Corps, Brought from England, Roll Onto a Ship-to-Shore Bridge to Resume Their Journey on the European Continent—In This Series of Photographs, Showing the Actual Operation from Deck to Shore, It Will Be Observed That as the Rails Aboard the Vessel Are Made Ready to Connect with the Railroad Bridge Which Army Railroaders Have Set Up on the Beach, Heavy Cable Secures the L. S. T. to the Shore—Once the Rail Connection Has Been Made Freight Cars Are Removed from the Vessel Over a Continuous Track—More Than 300 Locomotives and 20,000 Pieces of Rolling Stock Have Been Delivered to France Since D-Day





Official
U. S. Coast Guard
Photographs

Railroads-in-War News

"Phase Two" Adds to Strain on Railroads

Vinson sees no travel let-up; more traffic in West; racing ban off

Loads on freight transportation facilities will not be lightened nor will passenger travel become easier, according to the picture sketched by War Mobilization Director Fred M. Vinson of conditions under which the country will live as it prosecutes an all-out war against Japan. Meanwhile, Mr. Vinson did announce a lifting of the ban on horse racing, but he expects sports promoters "to continue their pledges of minimizing travel." The ban on conventions requiring travel by more than 50 persons remains in effect.

The Vinson statement took the form of a report entitled "The War: Phase Two," which he submitted to the President. Of transportation, the report has this to say:

"The transportation requirements of the shift to the Pacific war will add to the problems of the already overburdened railroads. Large quantities of supplies must be carried to the eastern ports for the liberated countries and American occupation forces. At the same time, the Japanese war will call for increased rail shipments of men and materials to the west, a long haul over the few western railways at a time when grain shipments may be reaching their peak volume.

Controls Must Continue—"Present government controls on civilian freight must continue. The total freight tonnage will decrease slightly; but the shift of the main current of traffic to the West may add as much as 10 per cent to the present heavy load in that area. It will be necessary to make greater use of water carriers to shorten rail hauls. Lack of pipe lines and waterways to the west coast will require maximum use of railroads to haul petroleum products for the Japanese war.

"Trains will be crowded because of the heavy movement of troops. Pullman space will be difficult to obtain. . . . Further curtailment of passenger service may be necessary. Present priorities on airplane travel will have to be continued.

"All efforts for most efficient use of trucks and buses must continue. The shortage of tires, batteries and gasoline will not allow the unrestricted use of private motor cars."

Thus did the O. W. M. director spell out what he had in mind when he mentioned transportation earlier in the report as an example of industries where there would be no reconversion yet. As to reconversion of other industries and additional civilian supplies thereby becoming available, the report listed locomotives, freight cars, and trucks among civilian items "needed in larger quantities." Also, the manpower problem in the transportation industry is expected to be alleviated by the employment of workers released by production cutbacks.

Watch Order Revoked

Revocation of Limitation Order L-175, controlling the distribution of railroad standard watches, new and used, was announced on May 9 by the War Production Board. The order which has been in effect since August 7, 1942, did not control production of the watches.

Its control of distribution made railroad time service employees, whose needs were certified by railroad officers, the only civilians eligible to purchase the watches. When the order was issued the demands of the armed services were so urgent that an appeal was made to the public to turn in idle watches of the type involved.

Earle E. McCarty Joins O. D. T.'s Railway Division

Earle E. McCarty, general manager of the Atchison, Topeka & Santa Fe's Coast Lines, has been appointed assistant director of the Division of Railway Transport, Office of Defense Transportation. The O. D. T. announcement said that Mr. McCarty is "on loan" from the Santa Fe, and that his appointment "is in recognition of the necessity of concentrating attention on the greatly increased railroad activity on the west coast due to the shifting of the war effort to the action against Japan."

Transport and Medical Chiefs Laud 2 Army Railroaders

Cpl. Robert Rutledge, of Pasadena, Calif., and Pfc. Eugene Cicero, of Bronx, New York, both attached to Hospital Train No. 12, recently received high commendation from Maj. Gen. Frank S. Ross, chief of transportation, and Maj. Gen. P. R. Hawley, chief surgeon, for heroism in saving their train, bearing 318 patients, from possible destruction.

As Headquarters relates it, their train had just come from St. Lo, and pulled into a siding at Lison, France, to permit another train to clear the yards when an explosion occurred, and "shrapnel started coming down like hailstones." The two army railroaders investigated and found that a 21-car ammunition train, loaded with 500-lb. fragmentation bombs, had been wrecked. They returned to their own train, reassured the patients, and rushed for the engine. The cab was empty, and they secured permission from the yardmaster to move the train, just managing to reach safety before five more bombs exploded.

First Public View of Pullman Exhibit

Commerce Department holds "Tomorrow's Trains Today" show in Washington

Sponsored by the Secretary of Commerce and staged in the Department of Commerce auditorium, the first public showing of the Pullman-Standard Car Manufacturing Company's exhibit, "Tomorrow's Trains Today," began May 8 in Washington, D. C., where it remained through May 12. The display had previously been shown to railway executives and invited guests in New York, as noted in *Railway Age* of March 10, page 464, and in Chicago and Washington.

Included in the exhibit were models of the various types of equipment designed by this builder for the post-war train, such as the Day-Nite coach, three deck coach, three-tier sleeper, club car, and diner with tables set in diagonal arrangement, all of which have been described and illustrated in these pages.

Members of Congress were urged to visit the exhibit by their colleague, Representative Rowan, Democrat of Illinois, who called the display "a most inspiring example of how American industry is preparing to carry out its responsibilities in the future." Mr. Rowan's statement appeared in the appendix to the May 8 issue of the Congressional Record.

While, as he put it, the exhibit depicts "some of the future plans and wares of only one company," Mr. Rowan saw it as typifying "all of the splendid foresight and conscientious endeavor that so many of our better known industrial concerns are displaying in their preparations to provide for the human and economic needs of tomorrow." He went on to pay tribute to Pullman-Standard and the railroads, and to quote census figures which show that "just before Pearl Harbor one out of every 40 gainfully employed wage earner was on the payrolls of the railroads, with thousands of others receiving their livelihood from those concerns which build cars and other railroad equipment."

"Think," he added, "what the modernization of our vast railroad network will mean to all these. Think what it must mean in new jobs and other opportunities for so many countless others. American history shows that whenever we have brought forth better products more jobs have followed. Pullman-Standard, right here in Washington this week, is pointing the way in a manner that must influence the future of millions of us.

"This is no one-industry matter. Thou-

(*Continued on page 839*)

Munitions Traffic Cut Before V-E Day

A.A.R. embargo ordered May 5, but advance notice had held flow to ports

The gradual collapse of German resistance has enabled the War Department to halt troop and supply movements to Europe on a more gradual and orderly basis than would have been possible if hostilities had ended suddenly, according to a V-E Day statement, which explained that many of the measures originally scheduled to become effective on that day had already been carried out.

Production cut-backs previously planned for the so-called Period One, to follow V-E Day, were actually begun about two weeks before then, it was revealed. Thus there will be no abrupt over-all cut-back in production of the type that was anticipated last fall.

Some Supplies Still Go—As military needs on the western front and in Italy declined, the flow of combat replacements and combat equipment to those theaters was reduced until only a trickle remained to be shut off on V-E Day. With the exception of materiel already on the high seas, the only supplies now authorized for shipment to Europe are those bearing a VDE designation, signifying that they are to go through regardless of the cessation of hostilities. This includes food, clothing, post exchange goods, and other subsistence items needed for the soldiers now in Europe.

Plans had been made for the Car Service Division of the Association of American Railroads to issue an embargo and a stop and hold order to cover all munitions en route to Atlantic and certain Gulf of Mexico ports on V-E Day. The gradual termination of hostilities made this unnecessary, however. At noon on May 5 an embargo was put into effect on such freight consigned to New York and to Hampton Roads ports, but only about 1,400 cars were affected by the accompanying stop and hold orders, it is understood. If V-E Day had come suddenly, as many as 20,000 cars might have been involved.

Munitions Diverted Jap-ward—Taking advantage of the advance notice of declining needs for munitions, the Army was able to shut off shipments from ordnance plants well in advance of the final surrender. Cars en route were diverted from Atlantic coast ports, also, with the result that there was no need to use all the machinery that had been set up to stop the flow through the "pipeline" all at once.

The diminishing scale and intensity of the fighting in Europe has been reflected in recent weeks in a sharp drop in the number of men being sent there as reinforcements and combat replacements, the War Department statement said. Redeployment of the troops now in Europe has begun on a limited scale, but the mass movement of troops out of the theater is yet to get under way.

Emphasis was put on the facts that, from the transportation standpoint alone, the problem of full transfer of our strength will be so great that (1) hundreds of thousands of American soldiers will be aboard ship at the same time, bound for a multitude of destinations; (2) hundreds of cargo vessels will be employed in moving troop equipment alone, in addition to the vast amounts of supplies which must be transported; (3) Army requirements for use of domestic transportation facilities will materially increase above the previous wartime peak, and (4) months will be required to complete the process of moving troops to the Japanese war and returning to their homes those soldiers who are no longer needed.

Heavy Travel Demands—Some information about the Army's plans to fight Japan was revealed May 5. It was indicated that about one year hence there would be 6,968,000 men in the American army, including troops in this country and in the occupational forces in Europe. Demobilization plans were outlined to indicate the size of that undertaking and the strain that would be imposed on transportation facilities to accomplish it without reducing the war effort in the Pacific. The size of the job was suggested by the statement that there are 70 combat divisions in Europe now, each one of which will require 75 trains for movement to a port, and this figure does not account for the huge number of supply and service troops that support the combat units.

The War Department summed up the main facts of redeployment, as far as it concerns manpower, as follows: (1) A program which gives us an army of 6,968,000 in 12 months from now will provide an adequate force to defeat Japan; (2) about 2,000,000 men will be returned to civilian life during the next 12 months; (3) about two-thirds of the combat units will come through the United States and have furloughs; (4) the larger proportion of service troops urgently needed in the Pacific will go there directly; and (5) transportation shortages, even with the 800 transport planes being used, will not get the last of the men who are to be discharged back to the United States in less than twelve months.

Prins Returns to O. D. T.

Charles E. V. Prins, who resigned from that position last month, has been reappointed director of the Division of Information of the Office of Defense Transportation. The reappointment was announced by O. D. T. Director J. Monroe Johnson in a May 8 statement which said that Colonel Johnson had requested Mr. Prins "to reconsider his resignation in view of the need for maintaining a full and experienced staff during the continuing transportation crisis and until victory in the war with Japan assures transportation relief."

Charles V. Warren, who was acting director during Mr. Prins' absence, has been appointed assistant director; he will be in charge of the development and promotion of various programs connected with the post V-E Day transportation problems.

No Apologies for Box Car Shortage

Johnson explains O. D. T. and I. C. C. actions; warns of more troubles ahead

Addressing the Senate committee on interstate commerce on May 3, Colonel J. Monroe Johnson, director of the Office of Defense Transportation, said that, "unless from this time on transportation needs for man-power, equipment, and material are taken care of adequately, and especially if any disruptive conditions occur, our transportation situation will become such that the present box car shortage will be looked upon as minor, and perhaps insignificant. The next thing to be looked for would be priorities, with the authorities saying which gun, tank or car is preferred for movement."

"Catastrophe" May Be Coming—Against this background the O. D. T. director recounted the conditions under which the O. D. T. and the railroads had been operating during the war, and particularly in recent weeks when the uneven distribution of box cars had so interfered with the movement of grain in the western states that complaints from the grain trade of that region led the committee to undertake an investigation of the car supply. Reports of previous sessions of the committee hearings have appeared in these pages in recent issues; the investigation was suspended subject to the call of the chairman, after Colonel Johnson's statement had completed the testimony of witnesses for the O. D. T., the Interstate Commerce Commission, and the Association of American Railroads.

As to the adequacy of the supply of man-power on the railroads, the O. D. T. director explained to the committee that it was quickly determined that the March 15 action of the Inter-Agency Committee on Deferments exempting from the draft some 40,800 rail employees in the under-30 age group would not afford sufficient relief. On April 6, therefore, he asked for "a total deferment of transportation personnel at once," in order to "avert a catastrophe." No action was taken on this request, he pointed out, until April 28, when the deferment committee rejected his request for a blanket deferment.

On the other hand, Colonel Johnson implied that the prospect for obtaining larger allocations of critical materials for the production of railroad equipment was somewhat brighter. He advised Senators Wheeler (Democrat of Montana) and Reed (Republican of Kansas) that he would soon enlist their help in getting a hearing for his claims for substantial allocations. Saying that in Deputy Director Charles D. Young the O. D. T. had the "best man in America" working on allocations at the War Production Board, he forecast some relaxation in restrictions on materials for equipment. As soon as O. D. T. is allotted some steel, he said, box cars will be built.

R. F. C. to Order Cars—In order to save "three or four weeks" in getting the construction of these cars under way, the

O. D. T. director explained, he proposes to have the Reconstruction Finance Corporation buy them. Then, as fast as the machinery can be made to operate, that agency will dispose of the cars to the various railroads. Colonel Johnson did not think it particularly important which roads obtained the cars in the end, as they would all go into the common pool in any event. He pointed out that, in December, 1944, when the quota of cars for that period had not been entirely taken up, in order to forestall expiration of the allocations of materials for them he had arranged for about 3,000 cars to be ordered through the R. F. C. These orders were quickly transferred to individual roads, however, he explained subsequently, so it was not necessary for the R. F. C. actually to meet the commitments for these cars.

Colonel Johnson's appearance before the committee came after several expressions of dissatisfaction with the handling of the box car supply had been made by Senators Wheeler and Reed especially, and after John J. Pelley, president of the A. A. R., had made an outspoken protest, on behalf of the Car Service Division particularly, against their repeated charges that the West had been discriminated against in the distribution of the available box cars.

Wheeler and Reed Still Critical—While the O. D. T. director's review of the circumstances preceding the acute stringency of cars in the grain belt, and of measures undertaken to meet that situation, was received with less criticism by the senators present than were some of the statements of A. A. R. and I. C. C. officers, it was evident as the hearings were brought to an end, at least for the present, that the performance of the commission and the railroads in the face of complaints about the distribution of cars was looked upon by Senators Wheeler and Reed and the western grain interests represented by Walter R. Scott (secretary of the Board of Trade of Kansas City, Mo.) as inadequate and unsatisfactory.

In opening his statement, Colonel Johnson pointed out that he had appeared before the committee in January, 1944, with reference to the diversion of grain cars to Canada, a procedure then attracting the senators' critical attention. At that time, he remarked, he had said that if the railroads were tied up for a couple of weeks for a strike or for any other reason, it would be equivalent to a military defeat. This winter, he observed, that tie-up occurred. "This is a war of transportation," he asserted, "to an extent never before experienced, and the least let-up by our railroads would mean catastrophe on any and all of our many fronts."

RRs Treated as Civilians—With this thought in mind, the O. D. T. director had gone before the W. P. B. on March 6, 1945, with a request for larger allocations of critical materials for domestic transportation. He read into the record the statement he made at that time to the W. P. B., setting forth the urgency of the need for relief from the starvation rations on which the transportation agencies had been required to live. In this statement he challenged in these words the government's failure to rate transportation as a war agency:

"It's strange to me that our armed forces consider the transportation system of our enemies a military establishment and spend thousands of tons of explosives and use hundreds of planes to destroy their railroads, highways, and bridges, whereas our own railroads and other transportation agencies are still regarded as non-military from which you take steel, equipment and man-power as from any other civilian activity, thereby destroying successfully, I am told, both the transportation system of our enemies and our own at the same time. It would seem to me that to destroy the transportation of our enemies and to build ours up into a virile, strong, and efficient organization would be one of the easiest ways to end the war speedily. So far, I have been unsuccessful in getting this doctrine adopted."

Colonel Johnson told the Senate committee that the congested situation in the East, resulting from the winter's storms, is about cleared up, although the percentage of ownership figures still show there are cars to be moved west. "We are dividing our box cars by long division," he remarked. "We are pressing for utmost service from the cars we have and we expect to continue this program." Under the operation of the C. S. D. quota demands on the eastern roads, "it should be only a short time until this location is righted. We will continue our efforts until proper distribution is effected, subject, however, to the war necessity for cars regardless of ownership."

Glad to Rent Cars—The alleged underownership of box cars on certain eastern roads, which had been the basis for repeated charges of discrimination by the western senators as the hearings proceeded, led the witness to agree that "the New England roads, generally speaking, do not own sufficient cars to take care of the loadings which they originate. On the other hand, certain roads, among them the 'granger roads', own or have provided themselves with cars most suitable for the seasonal periods of heavy loading, i.e., splendid grain cars. Ordinarily they are glad to have these cars off their line on per diem at times other than during the grain season. Normally, eastern roads use them under per diem arrangements to the advantage of all concerned.

"This has been true for years," Colonel Johnson continued, "and the present ownership of cars, divided into types, that is, between box cars, coal cars and others, has become accepted as best servicing for our national car supply. I am not in total agreement with this method. I believe that each road should own sufficient cars to take care of its own business, but my thoughts on this subject are not governing, nor have they been since 1941. . . . Since that time it has been impossible to augment our car supply. . . . What has been done and what must be done is to utilize our car supply to the best advantage of the nation's needs. To all intents and purposes our supply of cars of every type is a national pool. It must continue that way for the duration. . . ."

"Intemperate" Language — Colonel Johnson's appearance before the committee on May 3 opened with a reference to the letter he had written to the Kansas City group, using language which Senator Reed had called "intemperate," the result of which was, according to the senator, such widespread displeasure in the West that the committee's investigation was undertaken. The O. D. T. head expressed the opinion that the letter, and his alleged insult to Mr. Scott, "which consisted in effect of my stating in the senator's presence that the Board of Trade of Kansas City was not going to take over the direction of American wartime transportation," were not sufficiently serious to require the investigation.

While the I. C. C., the A. A. R., the individual railroads, the shippers, and the O. D. T. were "exerting every effort, and with measurable success," to overcome the "disastrous setback" caused by blizzards that brought about a loss of "millions of car-days," "and at a time when we were certain that our methods would be com-

* * *

In France, Where Electrical Power Is Not Always Available, Army Railroaders Frequently Have Employed Civilian Help to Swing the Big Turntables by Hand

pletely effective within a short time," Colonel Johnson declared, "we received the startling suggestion that the railroad transportation of the country be turned over to a committee of three railroad operating men to straighten out the congestion. Just who these men would be I never learned. In fact, I was not interested, because there were no three men who could have been picked out who could have done the job."

If the O. D. T. had acted on this suggestion—"I considered it presumptuous then and I consider it presumptuous now," said Colonel Johnson—the Senate committee "would have something to investigate." The performance of the American railroads has not been second to that of the Army or the Navy, he exclaimed. He went on to say that he had been writing "letters like that all my life," and, he continued, he had, as a result, "been in hot water all my life."

Senator Wheeler did not like the O. D. T. director's appraisal of the Kansas City group's suggestion, however, and he called the reply to it "ill tempered," and the term "presumptuous" he thought an "unfortunate expression." It was not presumptuous for citizens to offer suggestions to any branch of the government, the Montana senator declared, however ridiculous they might be. Some of the executive bureaus in Washington tend to feel that they are above criticism, he said, but it is part of the penalty of public office to get unjust criticism. If a government official doesn't want to be criticized, he pointed out, he doesn't have to hold his job.

Rough Usage for I. C. C.—Colonel Johnson's presentation followed the appearance before the committee, on May 2, of Fred S. Keiser, associate director of the O. D. T. Railway Transport Department in charge of grain and ore movements and I. C. C. general agent in charge of grain transportation, and of J. H. Aydelott, director of the railway department, on leave from his position as general manager, lines east, of the Chicago, Burlington & Quincy. They in turn were preceded by Interstate Commerce Commissioner Carroll Miller, chairman of the commission's Division 3, which has responsibility for car service matters, and V. C. Clinger, director of the I. C. C. Bureau of Service.

The I. C. C. spokesmen were rather roughly handled by Senators Wheeler and Reed, who made it plain that they thought the commission had not fully exercised its responsibilities in the circumstances. Senator Wheeler pressed Commissioner Miller for an answer to his question whether the division ever asked for or received any written reports that disclosed the car supply situation in the western states, and for evidence that the division had made any investigation of its own, to determine what conditions prevailed, when the Kansas City group's complaints were made. He did not find the answers to his liking. There is something wrong with the commission's organization, the senator asserted, if it receives no written reports to keep it informed about situations as serious as the western box car shortage.

Commissioner Miller contended that the division knew what was going on from daily contacts with Director Clinger and Colonel Johnson, who, he pointed out, is still a member of the commission and has direct charge of the Bureau of Service. It needed no special reports to keep it informed, he insisted. Senator Reed observed that in 1916, when there was a "vigorous" commission, an investigation was made of the then existing car shortage, and recommendations were made, even though the commission then lacked power over the railroad car supply. Now that the commission has such power, he said, it has "abdicated," except when advised by an "outside" agency—that is, the O. D. T.—to take action.

Army's Use of Cars—Mr. Aydelott pointed out that nearly 400,000 cars, largely box cars, were constantly engaged in the movement of munitions and other Army and Navy freight to the ports and depots, limiting the supply of cars for civilian use. The alleged tardiness in putting quota orders on eastern roads to get box cars returned to the western lines he said was the result of conditions that made any earlier imposition of such quotas an "impossible undertaking." The eastern roads were working their yards to capacity, he said, taking trains in just as fast as they were moved out. There was scarcely room in the yards to change cabooses, he declared. And he called attention, too, to the relative density of traffic in the East and the West. One eastern railroad, he said, has handled through one yard in one day more cars than all the railroads in the West handled in a day.

Mr. Aydelott went on to say that not all the people in the grain trade were in sympathy with the Kansas City group's complaints. The shortage of grain on hand at mills, about which the committee had heard a lot of testimony, was not altogether due to an inadequate car supply, he pointed out. Through much of the season there had been little demand for grain from the mills, but when the Army placed tremendous orders the mills suddenly rushed to buy wheat, with the result that their requirements could not be met with the available facilities.

Mr. Pelley appeared before the committee on both the 2nd and 3d, particularly to defend the accuracy of his report to it on April 30 of a telephone conversation with F. J. Gavin, president of the Great Northern. Senator Wheeler had repeatedly argued that there was something wrong about a system of handling the car supply that allowed the box cars on that road to drop to 39.2 per cent of its ownership, and Mr. Pelley informed the committee that Mr. Gavin had told him that the Great Northern at that time was getting along very well, and was getting cars as fast as the grain people in its territory could handle them.

Reed Wires Western RRs—Senator Wheeler immediately challenged the latter statement, and it developed later that Senator Reed subsequently telegraphed the presidents of several western roads, including Mr. Gavin, to the effect that Mr. Pelley had told the committee that the western roads were satisfied with the way the box car situation had been handled, and asking them to say whether the western roads were doing anything to help themselves or were leaving the matter for their senators to take care of.

Senator Reed had read into the record a portion of Mr. Gavin's reply, which tended to contradict the report Mr. Pelley had made of his conversation with him, and which concluded with a compliment for the committee and the comment that its investigation had been effective in improving the situation and focusing attention on conditions in the grain states. Mr. Pelley obtained permission a little later to read into the record the full text of Mr. Gavin's reply to Senator Reed. The portion which the senator had not read included the information that the Great Northern had about 15,000 box cars on its line on May 1, as compared to 10,038 on March 1, and that it had loaded about 10,000 in April, as compared to some 8,500 in April, 1944. The message went on to say that the Great Northern was satisfied that the situation, from a national standpoint, was in competent hands, and that, if in their judgment it was better to keep the cars in the East than to shift them west, it was proper to do so. There was no such thing as a Great Northern car any more, as all were in a common pool. While he had repeatedly protested the detention of G. N. cars by other railroads, he realized the difficulties resulting from the weather, the labor shortage, and other factors. And then came the portion of the message previously read by Senator Reed.

Jeffers' Observations—Pointing out that Mr. Gavin's complete message substantiated what he had told the committee the Great Northern president had said, Mr. Pelley then indicated a desire to read the reply of President William M. Jeffers of the Union Pacific to Senator Reed's inquiry. The senator pointed out that he had not received the reply, but permitted it to be read. In effect, it stated that the road's officers had been giving attention to the car shortage for months, and had made efforts at Washington to get more box cars on its lines. Conditions had improved since April 1, partly through the relief afforded by empty cars being returned from Pacific coast ports. The capacity of western roads was restricted by the demands for cars for loading war materials in the West, and the urgent necessity for handling such priority traffic was, in Mr. Jeffers' opinion, the principal cause of the dislocation of the box car distribution, justifying some relaxation of car service rules. There had been some improvement in the Union Pacific's car situation, but the road had called on the A. A. R. plainly in recent months to speed up the westward movement of box cars.

Senator Reed was not satisfied that the Great Northern was getting cars as fast as its grain people could handle them. "Somebody is mistaken," he declared. He went on to say that he had a reply to his inquiry from President F. G. Gurley of the Santa Fe, stating that his road had not consented to relaxation of car service rules or to retention of its cars on eastern roads.

On May 3 Mr. Pelley followed up this

discussion by reading into the record the full text of the replies of C. E. Denney, president of the Northern Pacific, and Mr. Gurley to Senator Reed's telegram. Mr. Denney said in effect that he was not passing the burden of the box car shortage to anybody, that the other roads were doing everything possible in the circumstances, and that the situation was improving and would continue to do so.

Mr. Gurley had replied not only as the senator had said, Mr. Pelley continued, but also had said that the Santa Fe was never satisfied unless its shippers got all the cars they wanted when they wanted them. However, the situation of his road was fluid, and during the first four months of this year it had loaded more grain than in the same period for the past 20 years. The situation was better, and he would like Senator Reed to tell him what else they could do to improve it.

Calls Pelley "Smug"—Senator Reed's ire was aroused by Mr. Pelley's course. "Out of your smugness," he said, the A. A. R. president had read the text of these messages without his consent. When he remarked that he had intended to put the messages in the record, Mr. Pelley replied that he had seen the day before that the senator was going to put in the part that suited him. "It's none of your business," the Kansas senator retorted, whether the messages were put in the record or not. When, later, Mr. Pelley pointed out that the senator had permitted him to read the Jeffers message, Senator Reed exclaimed that he often permitted people to be discourteous.

When Colonel Johnson had concluded his statement to the committee, which amounted to some 45 mimeographed pages and a number of supporting charts and tabular exhibits, Mr. Scott indicated that there had been some "slighting references" to the Kansas City group for which he was spokesman that required some reply. He then read the full text of the recommendations to the O. D. T., and other organizations, which were made first by the joint committee, in February, and later, with additions, by the Kansas City meeting, which, Senator Reed emphasized, was a representative group drawn from most of the western grain states.

Shortage Bigger Than the Figures—These recommendations hardly deserved the characterization Colonel Johnson had given them, in Mr. Scott's opinion. He then went on to comment on the car shortage figures given the committee by A. A. R. witnesses. These figures did not represent the true situation, Mr. Scott thought, because of the theory on which they were compiled. An elevator that placed an order for one car accounted for a reported shortage of one car only, he explained, even though it might be able to load a car every day for an extended period if they could be had. While the A. A. R. figures indicated a shortage of perhaps 16,000 box cars throughout the country on April 7—since which time conditions were said to have improved—four leading western grain markets alone actually had on hand 18,255 carloads ready to ship just as fast as the cars could be loaded, he said. If Mr. Pelley's figures were correct, showing an average gain in box cars on the western roads of about 610 daily, as Mr. Scott calculated it, it still would take until next September to restore to the western roads their ownership of box cars. The westward movement should be held at least to 2,500 cars a day until the balance is restored, he insisted.

Johnson's V-E Day Statement

The V-E Day statement of Director J. Monroe Johnson of the Office of Defense Transportation urged all branches of the transportation industry and all employees of O. D. T. to direct their full energies to the speedy defeat of Japan.

"Transportation," he said, "has performed brilliantly and must continue with no less brilliance through the second phase of the war which, in many respects, is more complicated and difficult than the first. Millions of men and the cargoes of thousands of ships already transported to Europe must again be transported and this time across the continent to their destination and mission in the far Pacific.

"The impact of this movement is already beginning to be felt and when its maximum is reached, then will come the test of American land transportation. No such test has ever before been encountered. At this time of celebration of a glorious victory, I ask all transportation industry and O. D. T. employees to remember that final victory will not be ours until Tokyo falls."

C. N. R. Booklet Gives Resume of Its Role in War

During the five years and four months, from September, 1939, to December 31, 1944, during which the Dominion had been at war, the Canadian National aggregated more than 330 million freight and passenger train-miles, made purchases totaling $500,000,000, had paid out $967,500,000 in wages and had transported 4,381,320 troops and 36,739,159 passengers employed in war industries. Such facts are revealed in a well-illustrated 12-page booklet entitled "Five Years of War—The Contribution of Canadian National Railways."

In addition to figures on freight and passenger traffic and engine operation, a paragraph on the railroad's 2,585 locomotives, 69,166 box cars, 29,222 freight cars and 3,393 passenger cars indicates that because of the difficulty of procuring new rolling stock, equipment has been used with "the strictest economy."

Such other topics as salvage and reclamation, personnel, contributions, victory loans, and express shipments are discussed briefly, and there is mention of the part Trans-Canada Air Lines has played in the past five years.

Restrictions on Transport of Race Horses Lifted

Following through from War Mobilization Director Vinson's May 9 action lifting the ban on race track operation, the Office of Defense Transportation announced on the same day the suspension of transportation restrictions which had been imposed to implement the ban. The restrictions involved were embodied in O. D. T. Order 14A which prohibited motor transportation of race horses and dogs and in the Interstate Commerce Commission's Service Order No. 271 covering rail transportation. O. D. T. has suspended its order and the like action taken by the I. C. C. is noted elsewhere herein. The O. D. T. statement pointed out that these actions do not affect other O. D. T. transportation policies or orders in effect at the time the racing ban was issued December 30, 1944. Such orders include prohibitions against the use of special buses to and from race the use of charter or special buses to and from race tracks. It was also emphasized that the ban on automobile and other motor vehicle racing in effect since July 31, 1942, remains.

Steel Industry Ready to Meet Civilian Needs

After consideration of military and probable civilian demands for steel following the cessation of hostilities in Europe, the steel industry advisory committee has assured J. A. Krug, chairman of the War Production Board, of the industry's ability to take care of requirements for the war against Japan and at the same time provide "all necessary steel" for war-supporting civilian activitits and for reconversion.

It was pointed out by the committee that there is now capacity sufficient to take care of the requirements for the war against Japan and still have available an amount well in excess of the average pre-war civilian consumption.

The committee further assured Mr. Krug that if all controls for the use and distribution of steel were removed with the exception of priorities on the remaining military load, there would be no question of the ability of the industry to meet civilian needs through its ordinary distribution channels in such a way that small consumers as well as large consumers would receive their full share of steel production.

Mr. Krug reiterated and emphasized that the policy of W. P. B. is to relax all controls on industry as quickly as it can be done consistent with the prosecution of the Japanese war.

Urges That Good Order Cars Be Kept Uncontaminated

Acting upon continuing reports "of aggravated instances of good order box cars being used for contaminating commodities, thereby unfitting them for further high class service," Chairman Warren C. Kendall of the Car Service Division has asked railroad transportation officers to give renewed attention to the matter. The appeal was made in a May 2 circular, which stated that the importance of conserving good equipment by avoiding improper loading "cannot be overemphasized," because of "the continuing and growing scarcity of box cars suitable for high class commodities, particularly munitions and food products."

"As has been previously stated," Mr. Kendall said, "transportation officers generally are familiar with stations and industries where the chief volume of contaminating commodity loading occurs. If definite and specific instructions are placed with local employees at these stations there

would be less likelihood of good order box cars being damaged by contaminating loading. Where there is a regular movement of traffic of this kind in sufficient volume it is suggested that, if such provision has not already been made, a sufficient number of low class system cars be provided for shuttle movement and be boarded to require return movement to originating points. The return empty movement of low grade cars is a lesser evil than the continued contamination of higher grade cars."

First Public View of Pullman Exhibit

(*Continued from page 834*)

sands of companies—companies that are so frequently termed the small businessman type of venture—have an equal interest. To construct only one railroad passenger car there must be available the wares of hundreds of apparently unrelated companies. All these companies have payrolls. The glass blower who makes the car windows, the steel puddler who helps supply the steel car walls, the upholsterer who finishes the seats, the paint mixer whose gay colors adorn the interior—all these are affected."

* * *

WANTED

$93,000,000 worth of RAILROAD TIES

This is an urgent call for help from American farms.

The railroads need crossties — 50,000,000 of them this year.

Various kinds of wood can be used for crossties. They bring good prices. Do you have some right in your wood lot?

There's no single source big enough to meet all this demand. But if every farmer cuts and sells some of his timber — even a few dozen trees — it will add up to relieve a critical situation.

That's why we publish this appeal. You can make good money, and help the war effort, by cutting crossties now. See your nearest railroad agent.

ASSOCIATION OF AMERICAN RAILROADS

ALL UNITED FOR VICTORY

Advertisement Currently Being Run by the Association of American Railroads in a Large Number of Farm Journals

The Lights Are "Kaput", Chaplain Is Told

The 734th Railway Operating Battalion, now in Holland, in its newspaper, "Highball," has a page reserved for comments or complaints from its readers. It is called "The Chaplain's Corner." A recent letter to the chaplain follows:

"Can anything whatsoever be done about the electricity in the cars on Track 35? You see we are not members of Company B, therefore Company B refuses to furnish us with power. Seems as if someone has the notion that the power plant is their personal property.

"Well, we took this bit of chicken with a grain of salt, because we found a pole in the yards from which we could get power. Everything was swell for a few days, then the detachment of the 717th moved in and tapped said pole. There was an extra load on the line, but we still had lights. Then the 752nd arrived and tapped the same line. That was the last straw. The lights are 'kaput' now. Every night at about 9:30 the fuse blows out, so we retire with aid of our flashlights (which sorely need batteries). The next day we track down the trouble which may be either a blown fuse or a thief who stole the wire.

"I've been splicing wires nightly for over two weeks now and my materials are running short. Tonight I used the last of my tape, so I guess I'll be without lights until the situation is remedied. I don't mind getting a few shocks every night because one may blow me back to the States, but it isn't helping my nerves any. Well, the lights just went out again so I'm finishing this with the flashlight, and that is also kaput and as I am low on matches I'll have to stop. I hope that you will be able to get this situation remedied." [(Signed) Some of the Outcasts of Track 35.]

Materials and Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since April 30, and which are of interest to railways:

Furnaces—Limitation Order No. L-22, which established simplified practices in the manufacture of furnaces, has been revoked by W. P. B. However, other W. P. B. controls that may affect the acquisition and use of materials for furnace manufacture remain in force, W. P. B. says. Originally issued in April, 1942, to effect savings in iron and steel, Order No. L-22 was liberalized through successive amendments.

Heating Boilers—Three schedules of the plumbing and heating simplification order, L-42, covering low-pressure heating boilers (Schedule III), cast iron radiators (Schedule VI), and radiator supply valves, thermostatic, float and boiler return traps (Schedule VIII) have been revoked. W. P. B. orders still in effect continue to restrict the use of certain materials entering into the production of equipment covered by these three schedules, W. P. B. pointed out.

Iron and Steel—General Preference Order M-21 has been revised and expanded to establish it as the ultimate sole authorization governing the production of iron and steel during the transition to a one-front war, the W. P. B. announced. Concurrently, Order M-21-a, which pertained to alloy steels, has been revoked and its major provisions have been incorporated in Order M-21.

At present M-21 is supplemented by orders L-88, L-211, M-6-a, M-6-b, M-17, M-18-a, M-21-b-3, M-21-i, M-21-j, M-23-a, M-24, M-24-b, M-39, M-110, M-126, M-296, M-369, and M-369-a.

Steel products have been redefined in Schedule I of the revised order to include all carbon and alloy steel products as well as wrought iron. The order also covers pig iron and iron and steel scrap.

Under Schedule II the order has been expanded to include jurisdiction over all of the metallic and non-metallic elements, the ores and chemical compounds thereof and the ferro-alloys used in the metallurgy of iron and steel.

The revised order maintains broad controls not only over the production of iron and steel, alloys and ferro-alloys, but also over melt schedules and the use of facilities in the production of these products.

Valves and Fittings—Three limitation orders affecting valves and pipe fittings have been revoked, effective April 28. They are: L-252, which established specifications of size and material for production of valves and valve parts, subject to specific use exceptions. L-278, which limited the manufacture of steel pipe fittings to specified types, sizes and specifications. L-288, which restricted the manufacture, sale and delivery of gray cast iron, malleable iron and brass and bronze pipe fittings to specified types, sizes and specifications. In all cases, W. P. B. said, the parts affected by the respective orders remain subject to all other applicable regulations and orders of W. P. B.

Prices

Douglas Fir—To prevent lumber mills from continuing to add extra charges in pricing Douglas fir lumber except where the additional charges are warranted, three new restrictions on the use of extras are provided by Amendment 13 to RMPR-26, effective May 4. This will reduce the cost of Douglas fir lumber an average of from one to two per cent, O. P. A. said. It includes:

1. Reducing the number of grades to which grain specifications may be added and reducing the premiums for grain specifications in several instances. Extra charges for 75 per cent heartwood and for square edge, formerly permitted, are eliminated.

2. Limiting the use of the maximum prices provided for certain industrial grades of Douglas fir to direct mill shipments with final delivery to historical users of such grades.

3. Limiting the number of grades in a combined shipment of any one sie of the same species to seven grades unless specified approval is obtained from O. P. A.

O. P. A. also added a penalty for the failure of mills to separate or designate grades by stipulating that when mixed grades are shipped without separation or identification, they may not be priced above the ceiling price for the respective sizes of the lowest grade listed in the order or invoice.

Ceiling prices on all grades of dimension lumber were increased $1.00 per M f. b. m. and the extra charge for Select Structural grade was increased from $5.00 to $7.00.

Maximum prices for all grades and sizes of planks and small timbers with the exception of Select Structural and No. 4 grades, which remain unchanged, were reduced $1.00 per M f. b. m.

Ceiling prices of 6x6, 6x8, 6x10, 6x12, 8x10 and 8x12 in all grades, except Select Structural and No. 4, were reduced 50 cents. Prices of all other sizes in all grades, except Select Structural and No. 4, were reduced $1.50.

Lumber-Custom Services—Southern and midwestern lumber concerns that operate, own or control both sawmills and custom mills located in Kentucky, West Virginia, Virginia, Tennessee, North Carolina, South Carolina, Arkansas, Louisiana, Mississippi, Alabama, Georgia, Florida, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana and Ohio were given permission by the O. P. A. on May 5, to charge for custom and drying services until May 15, by which time O. P. A. regional offices will have acted on all applications for authorization to continue to make the custom charges.

GENERAL NEWS

Two More Reports from A. A. R. Group

Cover personnel practices and sharing information with employees

Two more reports, dealing with railroad personnel practices and the sharing of information with employees, have been issued by the Subcommittee on Labor and Personnel of the Railroad Committee for the Study of Transportation. The subcommittee, headed by L. W. Horning, vice-president of the New York Central, is one of 15 at work on the research program being carried out under the direction of R. V. Fletcher, vice-president, research, Association of American Railroads.

Practices Need Critical Review—The report on "Railroad Personnel Practices" describes itself as one which outlines "some measures and methods of personnel administration which, in the light of actual experience, have proved their value in building morale, with all that goes with it in enthusiasm for the job and respect for leadership." Its recommendations suggest to each railroad management that "the personnel practices and the methods of personnel administration now prevailing on the road be carefully and thoughtfully reviewed" in the light of considerations outlined in the report.

The subcommittee found that the need for good employee relations has been "generally recognized" in the railroad industry, such recognition having become "more pronounced as the power of railway labor in shaping the future of the industry has become more evident." While the railroads "pioneered in personnel policies and practices designed to develop good employee relations," other industries have evolved "many refinements of old practices and a number of new practices," which the subcommittee thinks should have the "serious consideration" of railway management.

Educating Supervisors—It further recommends that each railroad develop a "well-rounded" personnel program with beginnings in an acceptance by management of its responsibility, and the education of all supervisors in the use of personnel-practice "tools." After listing certain of such "tools" which have received specific consideration in its previous reports, the subcommittee comes to its final finding that a "strong personnel department is essential if a railroad is to have a sound personnel program and good employee relations."

"The head of this department," the report adds, "should necessarily possess qualifications for his work and have a place in the organization commensurate with the responsibilities of his task. The personnel department has a two-way job—to aid management in the understanding of employee attitudes and employee needs, and to aid employees in acquiring a more complete understanding of the railroad and its problems."

The report had previously warned, however, that sole responsibility for employee morale cannot be delegated to the personnel officer, whose "principal function is to coordinate and serve as adviser and counselor." Responsibility for success in employee relations rests "squarely upon every member of railway management," the report asserts.

The Most Important R. R. Office—"In fact," it adds, "it is upon the supervisor that the greatest responsibility is placed for maintaining the type of relations with employees which are calculated to maintain and improve morale. This is to be expected, since it is he who comes in direct contact with the employees in their day-to-day activities. The supervisor, in order to gain the respect of his men, must exhibit true qualities of leadership. The effect upon employee relations of the countless acts of these supervisors is far greater than the direct effect of the words and acts of the chief executive officer. To the men in the ranks, the actions of their immediate supervisors are generally regarded as reflecting the policies and attitudes of top management.

"It is natural for a supervisor to maintain an attitude toward his subordinates which is similar to that of his superior officer toward him. What the chief executive can and should strive for in the development and administration of policies are standards of action and example which, when emulated by other supervisors, will ultimately result in good employee relations and high morale."

In other sections of its report the subcommittee spelled out its idea of the executive's responsibilities in personnel matters; discussed "conditions peculiar to the railway industry that emphasize the need for sound personnel practices"; and listed factors which influence employee morale. As indicated above, many of the latter have already been discussed in special reports which the subcommittee has issued on such subjects as reemployment of ex-service men and women; employee suggestion systems; toilet and washroom facilities; group insurance; credit unions; public relations training, etc.

Telling Employees the Facts—The report on "Sharing Information with Employees" was prompted by the subcom-

(*Continued on page 846*)

House Again Passes Land-Grant Repealer

Boren bill goes through without amendment by vote of 176 to 40

The House of Representatives on May 4 passed the land-grant rate repealer sponsored by Representative Boren, Democrat, of Oklahoma, by a division vote of 176 to 40. The bill, H. R. 694, thus has a year longer to get through the Senate than did its ill-fated predecessor which was not passed by the House until the second session of the previous Congress and which died with the Congress last December.

There were more House votes against the repealer this time, the 1944 opposition vote having been 16. As was the case last year, there was no roll call vote; and amendments offered by opponents of the bill were again voted down. When the 176-to-40 result of the voting was announced, Representative O'Hara, Republican of Minnesota, the only member of the House committee on interstate and foreign commerce who opposed that committee's favorable report on the bill, objected on the ground that a quorum was not present. Speaker Rayburn, counting himself, found that there were present 217 members, a quorum of the House's membership.

Amendment Efforts—The defeated amendments were like those which had been rejected when the bill's predecessor was before the House last year. The first, proposed by Representative Voorhis, Democrat of California, would have made repeal ineffective as to any railroad which did not reconvey to the federal government any granted lands still held and not used for railroad purposes; the second, sponsored by Representative De Lacy, Democrat of Washington, would have delayed the effective date of repeal until the Interstate Commerce Commission had considered the effect of repeal on the revenues of the carriers and "ordered a just and commensurate reduction in rates, fares, and charges to shippers;" and the third, sponsored by Representative Gossett, Democrat of Texas, would have attached a rider stipulating that "insofar as economically practicable and justifiable the Interstate Commerce Commission shall remove all rate discriminations and inequalities."

The first two of the foregoing were rejected by teller votes, the Voorhis amendment getting only 46 favorable votes and the De Lacy amendment only 33. The Gossett amendment went down when the chair sustained Representative Boren's point of order that it was not germane to the bill.

(*Continued on page 845*)

Higher Ceilings Bring Big Coal-Cost Rise

I. C. C. Bureau calculates 1944 bill would have been up $22,207,000

Railway coal costs would have been increased by $22,207,000 in 1944 and by $3,430,000 in this year's first two months if the new ceiling prices, amounting to a nationwide average rise of 16 cents per ton, had been in effect during those periods, according to calculations made by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission, in the latest issue of its "Monthly Comment on Transportation Statistics." As the Bureau points out, Economic Stabilization Director William H. Davis on April 30 authorized the Office of Price Administration to raise the ceilings in order to compensate mine operators for higher labor costs under the new bituminous wage contracts.

Coal purchases by Class I roads, including switching and terminal companies, in 1944 totaled 138,795,009 tons, the Bureau said; and it gave the average price as $2.74 per ton. The new ceiling increases the latter figure to $2.90 per ton.

Meanwhile the statement's regular monthly review of railroad operating results noted that the freight revenue of the Class I roads in March, on a daily basis, was 4.9 per cent higher than for February and 4.4 per cent above March, 1944. The freight revenue index (based on the 1935-39 monthly average as 100) was 232.1 for March, the highest since October, 1944. The freight revenue index for February was 221.4, and for January it was 208.2.

Travel Is Off—The passenger revenue index, on the other hand, was down to 381.5, off 16.3 points from February's 397.8, and lower than for any previous month since June, 1943. On a daily basis, March's passenger revenues were down 4.1 per cent from February and 9.6 per cent under March, 1944.

The Bureau's traffic forecast for the present month indicates that carloadings will be 2.9 per cent above the May, 1944, total.

This net figure results from estimated increases of 2.7 per cent in carload loadings and 4.4 per cent in l.c.l. loadings. One factor in the l.c.l. increase will be the increased number of cars loaded in the East under Office of Defense Transportation permits authorizing light loading in an effort to expedite the movement of box cars to the West.

Loadings of carload freight for this year's first half are now estimated by the Bureau at 18,653,012 cars, an increase of 44,932 cars or 0.2 per cent above the first six months of 1944. Actual loadings through April were 0.7 per cent above last year. The forecast for July through October indicates that carload loadings in that period will be 0.5 per cent above those of the same 1944 months.

Train Figures Improve—Turning to an analysis of train-service data, the Bureau calls attention to the fact that the performance in 1944's first two months was better than in the comparable period this year.

It adds, however, that this "may not be indicative of the situation for the balance of the year," since "weather conditions, which necessitated embargoes and detours, adversely affected operating efficiency in the early months of 1945." Meanwhile the passenger service operating averages for the first two months of 1945 "do not reveal any significant changes from those of the same period in 1944."

In another analysis the Bureau took a look at data it was able to assemble because the Class I roads have since January been required to report additional information regarding train performance by kind of locomotive. Among other things, the figures show that steam locomotives in this year's first two months hauled 92.6 per cent of the total gross ton-miles (excluding locomotives and tenders) as compared with 95.9 per cent in the first two months of 1944. Diesel-electrics hauled 5.6 per cent this year, and 2.2 per cent last year. The Bureau suggests that severe weather in January may have had some influence on the figures, particularly for the East, where "steam operation is high relative to Diesel."

Diesel Trains Are Faster—"The average number of gross ton-miles per train-mile (including locomotives and tenders) or gross tons per train in the 1945 period," the statement continues, "was 2,551 for steam locomotive trains as compared with 3,305 for Diesel trains, while the tonnage of locomotives and tenders only was 308 for steam and 381 for Diesel. Per ton of locomotives and tenders the load hauled (cars, contents and cabooses) was 7.28 tons in steam locomotive trains and 7.67 tons in Diesel trains. The average speed of Diesel freight trains in 1945 was 19.4 miles per hour or about 29 per cent greater than that of the steam trains.

"The foregoing figures, of course, are overall averages. Many Class I roads had no Diesels in the freight service in either period and several others only a very few. The averages therefore do not reflect like operating conditions and consequently do not measure satisfactorily the relative performance or efficiency of steam and Diesel locomotives. Based on gross ton-miles, including locomotives and tenders, in the first two months of 1945 nearly two-thirds of the total Diesel freight service was in the Western district."

Comparative figures on earnings of Canadian and U. S. railroads are interpreted by the Bureau as showing that the impact of the war was relatively greater in Canada in 1940 and 1941; but after the U. S. became involved, the freight traffic here was stimulated to a greater extent than in the Dominion. It was not until 1943, however, that passenger traffic in this country also showed a relatively greater gain than in Canada. In both countries the operating ratio was reduced about 10 points from 1939 to 1943, but has since risen in both countries, from 71.9 in 1943 to 79.4 in 1944 in Canada, and from 62.5 in 1943 to 66.6 in 1944 in the U. S.

Transport in Peace and War Discussed

Academy of World Economics devotes 8-session meeting to subject

Much talk on the general subject of "Transportation in War and Peace" was heard last week at the Academy of World Economics' Washington, D. C., meeting which got over a formidable program of eight sessions beginning on Thursday evening, May 3, and closing on Sunday evening, May 6. It was the Academy's twenty-third general meeting, and the program was arranged with the collaboration of the Army Industrial College and Pi Gamma Mu, a national social science honor society.

After general sessions devoted to the impacts of transportation on community life and the military aspects of transportation, there were sessions devoted to separate discussions of post-war prospects for each form of transportation, and a session which considered "Integration versus Coordination in Postwar Domestic Transportation." Speakers at the latter were Herbert Ashton, transportation analyst, Army Industrial College; Lewis C. Sorrell, director of research and planning, Air Transport Association of America, and John V. Lawrence, managing director, American Trucking Associations, Inc. Carleton W. Meyer, assistant to the president of the New York Central, and William M. Leonard, transportation officer, Office of Civilian Requirements, War Production Board, participated with the Messrs. Sorrell and Lawrence in a panel discussion of the integration matter.

Fletcher Is Hopeful—Meanwhile the session on "Railroad Transportation After the War" had been held with R. V. Fletcher, vice-president, research, Association of American Railroads, and C. B. Bryant, assistant to vice-president, Southern, as the principal speakers. Participants with them in the panel discussion which followed were Ford K. Edwards, head cost analyst, Bureau of Transport Economics and Statistics, Interstate Commerce Commission, and Daniel Mater, transportation analyst, Department of Commerce. I. C. C. Commissioner J. Haden Alldredge presided at the railroad session.

Judge Fletcher's subject was "Economic Problems in Railway Transportation," and he was optimistic that any such problems arising in the post-war era will be solved if the carriers are given "fair and sympathetic treatment by our legislative bodies." He reminded his audience of the "fine declaration of policy" that was embodied in the Transportation Act of 1940, and told how the Railroad Committee for the Study of Transportation, which he heads, has been trying to visualize the post-war situation "with a view to recommending such programs and policies as will inure to the benefit of the railroads, and thereby promote the public interest."

As Judge Fletcher views the outlook for general business, there may be a "brief period of uncertainty" following V-J Day;

but with that over he does not think it extravagant to anticipate that for a "very considerable span of years" business conditions in this country will approximate those of 1941. In that year, he recalled, the railroads performed more freight service than in any year from 1929 to 1940, inclusive; and the percentage of total business handled by them was greater than in any previous year subsequent to 1932. The rate of return was 3.75 per cent, the highest since 1929.

Air Travel Prospects—The A. A. R. vice-president was not contending that the post-war transportation picture would not reflect important changes as compared with 1941. He expects passenger travel by airplane to increase appreciably, though "it is by no means certain that all of this increase will be at the expense of rail travel. Much of it will be new travel, so to speak, and some of it will be at the expense of bus and private automobile travel."

Air freight cost figures quoted by Judge Fletcher indicated to him that "the movement of freight by air for the next ten years will not make serious inroads upon the present volume of freight transported by surface carriers," assuming that government subsidies "will not be of such character as to permit transportation of freight at a substantial loss." While the A. A. R. vice-president fears that the federal government will spend large sums on highways in the post-war period, he noted also that the motor carrier industry must face the "ever troublesome question of costs."

In the latter connection he went on to mention the increasing tendency of motor carrier wages toward stabilization at unionized rates of pay and the lack of prospects for tax reductions. Judge Fletcher recognizes that highway transportation is here to stay, but he insists that its economic sphere of activity "is limited by factors which will surely assert themselves." Among other such factors, "there is always present the hope of the users of private automobiles that some part of the highway will be left for their use." All of which leads him to believe that on the whole the motor transportation industry will not move in the next ten years a greater proportion of the total traffic than it did in the decade before Pearl Harbor.

Water Transport Will Grow—The railroad committee's studies of water transportation are not yet complete, so Judge Fletcher could only say that "our present judgment is that traffic on our navigable waterways will grow in volume, not by leaps and bounds but gradually to proportions substantially in excess of pre-war dimensions." He added that the threat to certain railroads "is very serious indeed," but "on the large, the railroads need not view this form of competition with undue alarm."

Assuring his audience that he was not viewing railroad prospects "with complacency," the A. A. R. vice-president went on to note that the industry is "fully aware of the competitive agencies that will struggle for business." To hold their own, the railroads realize that there must be among other improvements, increased speeds in passenger and freight service; improved terminal layouts; better freight cars and containers to reduce loss and damages; a never-ending study of increased fuel efficiency; more skillful handling of trains; more productive use of labor, etc.

"This war," Judge Fletcher went on, "has emphasized, as perhaps never before in railroad history, the importance of traffic volume as an essential to prosperity." He continued to point out how the maintenance of volume at present low rates will require large expenditures for rehabilitation and improvement of the railroad plants; and he found it comforting to report that the carriers "will enter the peace era with not less than two billion dollars in cash, the larger part of which will be available for improvements."

R. R. Capital Supply—"Viewing the situation as a whole," he said in closing, "it would not seem that the railroads need despair of finding sufficient funds to put them in a position where they can hold their own in the competitive struggle. This view, not I hope unduly optimistic, is predicated upon the assumption that the competitors of the railroads will not be unduly advantaged by extensive subsidies. It is obvious that no industry relying upon its own resources can successfully compete with another in the same field that receives vast subsidies from the taxpayers. . . . Common fairness demands, and I believe the principle will ultimately be recognized, that if the government provides an essential facility, the party benefited should pay a fair charge for its use, sufficient to maintain the facility and amortize its cost."

Mr. Bryant, as he put it, undertook to "hit some of the high points" among the technological problems faced by the railroads. He first pointed out how the industry years ago went through the "floundering around" period which is characteristic of new industries; and how its practices evolved from "rough and tumble technology" into "standard railroading." The industry's technological problems today, Mr. Bryant went on, are based "largely on economic problems"—if it is to survive "it will only be on the basis of doing the physical job cheaper."

Diesel Fuel Questioned—He continued to mention specifically various problems under continuing study, such as those relating to track, locomotives, and cars. He noted the "tremendous swing" to Diesel power, but he didn't know whether or not the steam locomotive would be largely supplanted. At present, the Southern has no more economic information on Diesels than its feeling that there will be enough Diesel fuel at a price to make the Diesels which it has acquired competitive with steam for the life of the Diesels. And it doesn't know how long that life will be. Meanwhile, Mr. Bryant noted that the "conventional" steam locomotive has been "greatly improved," and that experiments are under way with steam turbine locomotives.

With respect to cars, he said that the railroads want to reverse the trend of the recent past wherein dead weight has tended to increase. The question, as Mr. Bryant sees it, is the amount of additional expenditures which could be justified to effect savings in weight. Likewise with respect to roller bearings on freight cars, "the economic answer is the only answer"—the railroads have as yet been unable to see how the "15 to 20 per cent" extra cost of the car would come back to them.

Dr. Edwards, the first panel speaker on railroading, stressed rate-making difficulties arising from the fact that one transportation agency (the railroads) has heavy fixed costs whereas its principal competitor (the motor carrier) has low fixed costs. The problem, as he sees it, is to maintain what might be called a moving equilibrium between the forces of competition and the forces of natural monopoly.

Collective Bargaining Declines—Dr. Mater discussed labor-management relationships in the railroad industry, noting how collective bargaining has degenerated into a process wherein there is more and more resort to government and the political power of the parties. He suggested that more might be accomplished through cooperation on "collective truth seeking," although he did not think that role would fit those trained for collective bargaining. Another of his suggestions was that railroad managements might do much to improve the quality of men in their personnel departments. As Dr. Mater appraises the present railway wage structure, it is "out of balance" as between occupations within the industry; as between regions; and as between the railroads and their competitors.

Replying to a question from the floor, Judge Fletcher predicted that post-war railroad fares will not be much, if any, lower than the present basis, but he does not think that fares can be increased if travel is to be maintained in good volume. Beyond that he believes generally that the future of the passenger business lies in improved service. The A. A. R. vice-president also told a questioner that the l.c.l. business could be handled with profit if it remains in sufficient volume; and he antici-

* * *

New C.P.R. Locomotive

Last of the 45 Pacific-type locomotives, built for the Canadian Pacific by the Canadian Locomotive Company, Kingston, Ont., to augment the railroad's war-time motive power line-up. Two experimental applications, the first of their kind in the Dominion, have been introduced on 10 of the new locomotives—namely, pistons with flame-hardened ring grooves and light-weight die-made aluminum crosshead shoes

pates that the railroads will make every effort to keep the volume high.

At the session on "Integration versus Coordination," Dr. Sorrell of the Air Transport Association and Managing Director Lawrence of A. T. A. expressed their opposition to any integration which would contemplate ownership and operation by one company of all forms of transportation. The former discussed the matter at some length, noting that there is already much "integration" of rail and bus companies in the field of intercity passenger transportation, and raising a question as to whether "the public ought to approve any further integration in the light of existing tendencies." He did not think it should, although he did not express any opinion as to whether the existing relationships between the railroads and the bus lines should be disturbed.

"Integration" Bugaboo—With respect to the airlines, Dr. Sorrell said that their affiliation with surface carriers "would doubtless tend to restrict them to the organization mold of the latter, and would weaken their capacity to work out their own evolution, and to reveal at least newer and different ways of organizing human effort for transportation activity."

To Mr. Lawrence, integration means "monopoly," and it also means that "railroad financiers are entertaining visions of a new era of monopoly in transportation, with themselves as masters." He went on from that text to give a highlight picture of truck services now available to shippers; and to cite instances of improved railroad merchandise freight service in an undertaking to make the point that "trucks were the whip that drove the railroads to thus improve their service." In closing Mr. Lawrence called for "integration of service" through the establishment of joint rates among all forms of transport. He said that the motor carriers stand ready to go along on such a program.

Opening the panel discussion Mr. Meyer said that integration, as he uses the word, raises a question as to the circumstances under which one type of carrier may be permitted to control another. If the railroad industry has advocated a cartel-like set-up, he is not aware of such advocacy. He read the A. A. R. resolution on the subject as one asking only fair and equal opportunity—not preferential opportunity—in the truck, bus, water, or air fields. This, he went on, would mean that a railroad applicant would have to prove its case before the proper regulatory body just like any other applicant.

Transport "Dept. Stores"—The railroad position, as Mr. Meyer otherwise stated it, is that the law ought to make possible "transportation department stores as well as specialty shops." Taking note of references to the Transportation Association of America as a "railroad" organization, Mr. Meyer pointed out that the T. A. A. board of directors has more shipper members than railroad members. He added that the association does not speak for the railroad industry, since railroad men disagree "with a lot of things" it says.

Coming to the question of coordination, Mr. Meyer said that the New York Central has contracts with 47 over-the-road truckers; and the only reason it doesn't have more is the demand of the motor carriers for joint-rate arrangements rather than contracts. In the latter connection, N. Y. C. thinks that joint-rate arrangements are an aspect of partnership, and thus do not fit into railroad relationships with competing over-the-road truckers. With respect to N. Y. C.'s investment in Central Greyhound Lines, Mr. Meyer insisted that the latter "has continued to operate as a bus system." And he further insisted that air-service applications filed by Greyhound companies are in no sense railroad applications.

Aviation Largely Socialistic—In closing Mr. Meyer had something to say about subsidies, noting that the public investment in New York's LaGuardia Field amounts to $50,000,000, "or more than the pre-war investment of all domestic airlines in equipment and private property." And N. Y. C., as a local taxpayer, contributed about 20 per cent to the cost of New York City's streets on which over-the-road trucks find loading and unloading spaces without cost.

The other panel speaker—Mr. Leonard of W. P. B.—expressed the view that potential economies in transportation will not develop as rapidly through coordination as through integration. While he thus feels that the public interest requires a "considerable degree" of integration, he suggests that the railroads first clean up "their own back yards" by proceeding with railroad consolidations.

Speakers at the session on "Military Aspects of Transportation" were Brigadier General Donald Armstrong, commandant of the Army Industrial College, and Colonel Luke W. Finlay, executive officer to the chief of transportation. General Armstrong found that there has been a greater improvement since 1918 in the transportation factor than in any other element of our war potential. The fact that there has been so little criticism of transportation bears this out, he added.

War Transport Plans—Colonel Finlay stated it to be his view that the present war's control set-up for transportation has worked so well that they could be used with only minor changes in any future conflict. He regards transportation as the keystone of national defense, and thinks all agencies have proved their indispensability in time of war. In the panel discussion, General Armstrong expressed the hope that the I. C. C. might cooperate in the planning for future wars, by developing within its organization the nucleus of a war transportation agency which could be activated on short notice.

Speakers at the session on airline transportation were Hampton K. Snell, assistant director of research in charge of Public Utility Group, Army Industrial College; Myles E. Robinson, economist, Air Transport Association of America; and Otis F. Bryan, vice-president, war projects, Transcontinental & Western Air, Inc. Chester Thompson, president, American Waterways Operators, Inc., and Almon Roth, president, National Federation of American Shipping, Inc., spoke at the session on waterway transportation. The session on highway transportation was addressed by Roland M. Rice and John C. McWilliams, general counsel and chief economist, respectively, of A. T. A.; while Jack Garrett Scott, general counsel of the National Association of Motor Bus Operators, was a participant in the panel discussion. The address at the closing dinner session on the 6th was delivered by Joshua B. Lee, member of the Civil Aeronautics Board.

Perlman Relinquishes Research Chairmanship

A. E. Perlman, chief engineer of the Denver & Rio Grande Western and chairman, since its inception, of the sub-committee for engineering and mechanical research of the A. A. R.'s Railroad Committee for the Study of Transportation, has asked Judge R. V. Fletcher, chairman of the "big committee," to relieve him of the sub-committee chairmanship in view of his "heavy load of extra-curricular activities added to his normal duties."

In accepting "with great regret the necessity for this action" on Mr. Perlman's part, Judge Fletcher has expressed his appreciation for the "time and talent which has gone into" the retiring chairman's labors for the sub-committee, and has asked H. R. Clarke, chief engineer of the Burlington, to act as chairman of the sub-committee for the time being—at least until the committee can be called together for a further review of the course to be followed in the completion of its assignment.

Trimble Heads I. W. C.

South Trimble, Jr., who has been solicitor of the Department of Commerce, has been appointed president of the government-owned Inland Waterways Corporation, operator of the Federal Barge Lines. As noted in the *Railway Age* of April 21, page 731, it had been reported for some time that Secretary of Commerce Wallace planned to appoint Mr. Trimble to the I. W. C. post, which had been vacant since former President Chester C. Thompson resigned last August.

The official confirmation came in a White House announcement of last week which revealed that Mr. Trimble had resigned as Commerce Department solicitor to accept his new position.

New Strain Gage Demonstrated by Baldwin Southwark

On May 1, 2 and 3 the Baldwin Locomotive Works, Baldwin Southwark Division, held at the Hotel Statler, Washington, D. C., a conference and demonstration on the use of its SR-4 resistance wire strain gages and electrical indicating equipment. Each day's program consisted of two sessions, one in the morning and one in the afternoon. At the morning sessions the application of the strain gage and its equipment was demonstrated, followed by a discussion of the theory of strain-gage measurements, and of the accessory equipment for indicating and recording strain-

gage circuits. The afternoon sessions dealt with dynamic and fatigue testing and included discussions of multi-axial strains and the application of electrodynamics to recording, switching, telemetering, analyzing and fatigue testing.

Because of low first cost and the simple method of attaching the gages they can be applied at many locations on a structure or machine and, by the use of suitable switching equipment, the readings from many locations can be quickly scanned and recorded.

For those unable to attend during the day one evening session was held on May 2. Each day's sessions were attended by some 300 persons representing the armed forces, the Maritime Commission, members of the teaching staffs of local colleges and universities, railroad men, and others. A series of similar conferences have been arranged for a number of other cities, some of which have already been held.

Net Income for March and First Quarter of 1945

Class I railroads in the 12 months ended with March 31 had a rate of return on their property investment averaging 3.94 per cent compared with 4.63 per cent for the 12 months ended March 31, 1944, according to the latest monthly earnings statement issued by the Bureau of Railway Economics, Association of American Railroads, and noted briefly in the *Railway Age* of May 5, page 807.

As there reported, March's estimated net income of $62,800,000, after interest and rentals, and its net railway operating income of $99,884,567, before interest and rentals, were up from the respective March, 1944, figures of $53,652,620 and $93,853,327, thus marking the first time in a period of 22 consecutive months when the net earnings of the carriers showed an increase as compared with the same month of the previous year.

The estimated net income for this year's first three months was $139,500,000 as compared with $148,220,978 in the first quarter of 1944, while the net railway operating income for that period was $246,063,085 compared with $266,065,755. Twenty-six Class I roads failed to earn interest and rentals in this year's first quarter, 13 of them being in the Eastern district, two in the Southern region, and 11 in the Western district.

The A. A. R.'s summary of results for the month and the quarter is shown in the accompanying table. As reported in the A. A. R. statement, the breakdown of these figures shows that Class I roads in the Eastern district in the three months had an estimated net income of $51,500,000 compared with $62,578,823 in the same period of 1944. For March alone, their estimated net income was $30,900,000 compared with $23,747,964 in March, 1944. The Eastern district's net railway operating income for the three months was $96,205,466 compared with $112,463,398 in the same period of 1944. Its net railway operating income in March amounted to $46,276,144 compared with $40,911,828.

Gross in the Eastern district in the three months totaled $974,785,362, a decrease of 2.5 per cent compared with the same period of 1944, while operating expenses totaled $730,171,366, an increase of 2.4 per cent.

Class I roads in the Southern region in the three months had an estimated net income of $26,400,000 compared with $29,212,780 in the same period of 1944. For March alone, they had an estimated net income of $8,900,000 compared with $9,725,294 in March, 1944. Those same roads in the three months had a net railway operating income of $42,548,475 compared with $45,631,905 in the same period of 1944. Their net railway operating income in March amounted to $14,988,964 compared with $15,664,330.

Operating revenues in the Southern region in the three months totaled $339,599,100, an increase of 1.2 per cent compared with the same period of 1944, while operating expenses totaled $213,870,622 or an increase of 4.9 per cent.

Class I roads in the Western district in the three months had an estimated net income of $61,600,000 compared with $56,429,375 in the same period of 1944. For March alone they had an estimated net income of $23,000,000 compared with $20,179,362. Those same roads in the three months had a net railway operating income of $107,309,144 compared with $107,970,452 in the same period of 1944. Their net railway operating income in March amounted to $38,619,459 compared with $37,277,169.

Gross in the Western district in the three months totaled $963,086,249, an increase of 2.6 per cent compared with the same period of 1944, while operating expenses totaled $630,643,652, an increase of four per cent.

CLASS I RAILROADS—UNITED STATES

	Month of March	
	1945	1944
Total operating revenues	$813,327,614	$797,029,214
Total operating expenses	544,809,878	527,433,356
Operating ratio—per cent	66.99	66.17
Taxes	153,839,948	158,782,714
Net railway operating income (Earnings before charges)	99,884,567	93,853,327
Net income, after charges (estimated)	62,800,000	53,652,620

	Three Months ended March 31, 1945	
Total operating revenues	$2,277,470,711	$2,273,006,410
Total operating expenses	1,574,685,640	1,523,540,259
Operating ratio—per cent	69.14	67.03
Taxes	414,993,245	436,580,160
Net railway operating income (Earnings before charges)	246,063,085	266,065,755
Net income, after charges (estimated)	139,500,000	148,220,978

Truck-Forwarder Rate Bill Moving Fast

The Senate committee on interstate commerce on May 9 voted to report favorably the House-approved bill to extend for nine months beyond the present May 16 deadline the period within which forwarders must change over from joint-rate arrangements with motor carriers to the use of assembling and distribution rates published by the carriers. The bill, H. R. 3038, was passed by the House without debate on May 7.

It is sponsored by Chairman Lea of the House committee on interstate and foreign commerce, and it now supersedes in the Senate the companion bill, S. 926, which had been introduced by Chairman Wheeler of the Senate committee.

Freight Car Loading

Loadings of revenue freight for the week ended May 5 totaled 863,399 cars, the Association of American Railroads announced on May 10. This was a decrease of 35,822 cars or 4.0 per cent below the preceding week, an increase of 27,861 cars or 3.3 per cent above the corresponding week last year, and an increase of 46,861 cars or 5.7 per cent above the comparable 1943 week.

Loading of revenue freight for the week ended April 28 totaled 899,221 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, April 28			
District	1945	1944	1943
Eastern	167,872	166,664	151,275
Allegheny	203,788	192,757	171,585
Pocahontas	56,931	55,873	47,800
Southern	131,670	125,810	116,585
Northwestern	130,635	120,398	108,950
Central Western	133,088	116,635	119,163
Southwestern	75,237	72,304	73,431
Total Western Districts	338,960	309,337	301,544
Total All Roads	899,221	850,441	788,789
Commodities			
Grain and grain products	52,725	37,873	46,597
Live stock	16,563	15,504	15,713
Coal	175,626	173,659	134,261
Coke	15,139	14,754	13,653
Forest products	40,986	42,886	43,755
Ore	72,921	67,475	53,391
Merchandise l.c.l.	113,977	107,207	97,577
Miscellaneous	411,284	391,083	383,842
April 28	899,221	850,441	788,789
April 21	864,063	838,737	794,163
April 14	846,391	798,683	780,908
April 7	764,763	787,985	789,019
March 31	835,226	786,106	772,102
Cumulative Total, 17 Weeks	13,444,306	13,504,699	12,964,789

In Canada.—Carloadings for the week ended April 28 totaled 71,295, as compared with 70,323 for the preceding week and 71,455 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
April 28, 1945	71,295	38,033
April 29, 1944	71,455	38,023
Cumulative Totals for Canada:		
April 28, 1945	1,123,995	634,336
April 29, 1944	1,157,887	676,208

Club Meetings

The **Western Railway Club** will meet at 7 p. m., May 21 at the Hotel Sherman, Chicago. Primarily an evening of entertainment, no paper is to be presented, though election results of officers will be announced.

The **Northwest Locomotive Association** will meet at 8 p.m., May 28, at Colonial Club Hall, 574 Wabasha street, St. Paul, Minn. This will be the annual meeting with election of officers, followed by an evening of entertainment.

The **Car Department Association of St. Louis** (Mo.) will hear Joseph J. Root, Jr., vice-president, Union Tank Car Co., discuss "The Tank Car—Steel Soldier of

the Home Front," when this group meets at 8 p. m., May 15, at Hotel DeSoto.

The "Use of Aluminum in Railway Construction" is to be discussed by J. O. Chesley, manager, railroad division, Aluminum Company of America, Pittsburgh, Pa., when the **Railway Club of Pittsburgh** meets at 8 p. m., May 24, at the Fort Pitt Hotel.

There will be no meeting of the **New England Railroad Club** in May, and the annual banquet and entertainment earlier announced for May 15 has been cancelled. The next scheduled meeting of the group is set for October 9.

The **Traffic Club of Philadelphia** will hold its spring outing at Manufacturers' Golf and Country Club, Oreland, Pa., May 24.

N. & W. Advertising Series

The Norfolk & Western, citing its **"Precision Transportation,"** currently is running a series of advertisements in various farm papers and business magazines. Subjects are varied.

Entitled "Life Lines," "From Spinning Wheels to ???", "The Old Oaken Bucket" and "You Take the High Road and I'll Take the Low Road," the advertisements deal with the volume of food and other farm produce which the N. & W. carries, location of new textile plants in this railroad's territory, the railway's "highly trained traffic specialists," whose services are available in many of the principal cities of the country, and concrete reasons for "specifying precision transportation."

House Again Passes Land-Grant Repealer

(Continued from page 840)

Also, Mr. Boren blocked another Voorhis amendment when he objected to the Californian's request for unanimous consent to return section 2 of the bill "so that I may offer an amendment with regard to the effective date of the act."

Same as Last Year's Bill—Thus the bill, as it passed the House, is identical with the measure passed last year. It is a complete repealer, proposing to finish the job started by the partial repealer embodied in the Transportation Act of 1940 which left the land-grant deductions applicable to the transportation of military or naval property and personnel. The effective date of repeal would be 90 days after the bill's enactment date, and there is a provision stipulating that the I. C. C. "in the exercise of its power to prescribe just and reasonable rates, fares, and charges, shall give due consideration to the increased revenues which the carriers will receive as a result of the enactment of this act, so that such increased revenues will be reflected in appropriate readjustments in rates, fares, and charges to shippers."

The bill came before the House with benefit of a rules committee resolution embodying a rule for its expedited consideration. This rule, providing for two hours general debate and a reading of the bill for amendments, was adopted without discussion, and thus debate on the repealer itself got promptly under way. It was opened by Representative Boren who touched briefly upon the history and workings of land-grant deductions, closing with an expression of his view that the time has come to erase the "discrimination which rests on the people of this country" as a result of the "preferential" rates accorded the government.

"Paid Their Debt"—Mr. Boren then yielded the floor to Chairman Lea of the interstate commerce committee who made the principal statement in support of the bill. Mr. Lea emphasized the "equity" of relieving the railroads who have long since "paid their debt" for the lands. He estimated that the deductions are now running at about $240,000,000 a year, but when bigger figures were suggested he said they only made stronger his argument that "justice" demands elimination of the burden on the railroads.

Mr. Lea also calculated that the value of the lands granted to the railroads was $126,000,000 or "just about what we have sometimes appropriated in one year for water transportation." He added that "we have appropriated as much in one year in aid of air transportation"; and "it is only a fraction of what we have spent in one year for highway transportation." Mr. Lea next called attention to the $1,846,000,000 tax bill paid by the railroads in 1944 to the state and federal governments; and he noted that this amounted to $740,000,000 "more than the railroads themselves received as net income."

Deferred Maintenance—He went on to mention deferred maintenance which he said is accumulating at a rate of from $100,000,000 to $200,000,000 a year. Finally, he told of the railroads' need of a billion dollars a year for improved facilities and equipment in the post-war period. "We should," he added, "at least give them fair treatment to encourage them in that program, which should be helpful to the country, to labor, to shippers, and to themselves."

First of the bill's opponents to speak was Representative Pace, Democrat of Georgia, who predicted that enactment would be followed by a $240,000,000 appropriation "of the taxpayers' money to give to the railroads when the committee report shows that the income of the railroads last year was $9,500,000,000, the largest in history." Mr. Pace also objected to the bill's failure to provide for return to the government of granted lands still held by the carriers. All in all it seemed to him that the House by favorable action would be "handing the taxpayers of this nation a rather sordid package."

While Mr. Pace was thus talking about the interest of the taxpayers, Mr. Lea broke in to ask "what credit are we going to give the railroads for the fact that they have given the federal government over $900,000,000 interest on an investment of $126,000,000?" But the time of the gentleman from Georgia expired, so he didn't answer the question.

Other Supporters — Representatives Hinshaw of California, Halleck of Indiana, and Brown of Ohio, Republicans, and Harless of Arizona and Priest of Tennessee, Democrats, were other members of the interstate commerce committee who spoke in favor of the bill. Among other things, Mr. Hinshaw stressed the fact that the bill would not necessarily return rates on war freight to the commercial basis, for section 22 of the Interstate Commerce Act would remain with its provisions permitting the railroad to make contract rates with the government.

Mr. Halleck called the measure a "shippers bill," arguing that if government freight is to move on an "excursion rate," the revenue loss to the railroads must be made up by private shippers. In like fashion did Mr. Brown state the "real question" to be "whether we shall continue to subsidize the government at the expense of the independent shipper." As Mr. Harless saw it, the bill "will merely make it possible for all shippers, including the government, to be put on a fair basis." Mr. Priest argued that the public interest called for passage of the bill, because the land-grant arrangement, "thoroughly justified in the beginning, has become one of our major economic problems."

Other favorable speeches were made by Representatives Gearhart of California and Cunningham of Iowa, Republicans. Meanwhile, Representative Pace's opposition found support in speeches by Representatives O'Hara and Engel of Michigan, Republicans, and Poage of Texas and Thom of Ohio, Democrats.

Some G. O. P. Opposition — Mr. O'Hara stressed the "solemn agreement" entered between the railroads and the government, and indicated his lack of hope for any rate reduction following passage of the bill. He inserted into the Congressional Record a table showing earnings by individual roads from 1940 through 1944. He calculated that the aggregate net revenue in that period amounted to $3,000,000,000 and thus he could not go along with the idea of "making a Christmas present" to the carriers. He thinks his colleagues on the interstate commerce committee "have just misinterpreted the situation." In any event, if they are right on the matter he wants to be wrong.

Representative Engel argued against increasing government freight charges in these times of the huge national debt, and he also charged that classification ratings on some materials shipped by the War Department are "very high." Mr. Poage, who opposed the bill last year also, saw "no new reason for letting the railroads back out of one of the very few favorable contracts the United States government ever made." Representative Thom suggested that if the theory behind repeal were to be given very general application "maybe Russia ought to come in and ask us to return Alaska because everybody agrees we paid too little for it."

"Iron Cross" for A. A. R.—Arguing in favor of one of the rejected amendments, Representative Kirwan, Democrat of Ohio, who said he worked on a railroad for 20 years, assailed the Association of American Railroads, asserting that he was in favor of awarding to it an "iron cross" if any are to be conferred in this country after the war is over. Mr. Kirwan's feeling against the A. A. R. seems to be based on his dislike of its advertising. "Every news-

paper in the United States, whether it be a small town or a large city, and every magazine in this nation since the war started," he said, "has printed full-page ads, half pages, and quarter pages showing pictures of a locomotive and three or four cars, telling the people what a great job the railroads have done during the war."

Mr. Kirwan thinks differently. He believes their rates on war materials are too high, and he doesn't like some of the financial arrangements made in connection with the leasing of one railroad by another, or the organization of bridge-company affiliates to construct and operate river crossings.

Fiscal 1946 Funds for I. C. C. and Public Roads

President Truman has signed H. R. 1984, the Independent Offices Appropriation Bill for the fiscal year ending June 30, 1946, which carries $7,676,338 for the Interstate Commerce Commission and $83,000,000 for the Public Roads Administration, the latter figure including $6,000,000 for grade-crossing work. Congressional action on the measure was completed on April 25 when the House and Senate adopted the conference report.

Security Lid Off on Commodity Data Reported to I. C. C.

Data relating to strategic and critical materials are coming back into the Interstate Commerce Commission's monthly reports of freight commodity statistics after having been withheld since 1942 for security reasons. The commission's Division 1 issued a May 2 order to bring the figures back, effective with the March reports, after having been advised by the Bureau of the Budget that there is no further objection to publication on security grounds.

Eleven commodity classes were involved, including ores, metals, rubber, chemicals and explosives.

Two More Reports from A. A. R. Group

(*Continued from page 840*)

mittee's recognition of the principle that "no one can be expected to do an effective job unless he knows why he is doing it." It concludes that a company which would have its employees appreciate and understand its problems should inform them about those problems; and that employees should be given facts which will enable them to discuss their industry intelligently.

Various types of programs designed to increase the understanding of employees are discussed by the subcommittee, including the employee handbook or manual, the employee magazine or newspaper, formal reports of company activities specially prepared for employees, informal statements or information tabs issued to employees periodically on subjects of current interest, and the conference method.

The employee handbook or manual which the subcommittee had in mind is one "designed primarily to be distributed as a greeting to new employees, giving information in concise form on matters pertaining to their employment in which they should be interested." While the manual is a comparatively recent development, the report finds that its use is growing rapidly, and recommends consideration of it by roads not now using it.

R. R. "House Organs" Found Good—The company magazine or newspaper is called "a valuable instrument of employer-employee relations"; and railroads "do not rate second to any industry in the production and quality of house organs," the publications being "noteworthy for their high standards of editing and design." In this connection, the subcommittee feels that management "should not lose sight of the fact that 'employee periodicals' are issued for employees, and should reflect the views of management. Employees are quick to represent their views to management. The company publication is one avenue through which management may express its views to employees. The magazine should offer constructive discussion of fundamental problems in terms of the general welfare of the industry."

With respect to annual reports, the subcommittee recognizes that the special report for employees may be arranged "to awaken the interest of the employee," but it is found to have the disadvantage of making some employees suspicious that they may be getting a story different from that told to stockholders. The subcommittee thus notes the tendency toward simplification of stockholders' reports, and sees no reason why a stockholders' report of that type should not also be satisfactory to the employee. "Salient facts that otherwise might be incorporated in a company annual report to employees may also be presented piecemeal in the company magazine," it adds.

Information bulletins are found to be "a valuable medium for conveying information to employees," but the subcommittee believes it unnecessary to issue such bulletins on a regular schedule. It notes with apparent approval that some roads issue them only "when the need arises—when some particularly important subject is in the public mind." The report's brief reference to the conference method says that regular meetings between management and employees "are an effective means of building morale and sharing information." It adds that some roads believe that such personal discussions "bring more lasting benefits than brochures or texts which may not receive full consideration."

Because of the widespread use of the foregoing procedures, the subcommittee suggests that for most roads conducting a survey of their information activities "it will not be a question of 'Should we use them?'—but rather, 'How can they be improved?'" No procedures, it adds, can be truly effective "unless they consider fundamental problems of the industry with courage and common sense."

Krug Says "Stock Coal"

Users of bituminous coal have been asked to stock as much coal as possible this summer, by J. A. Krug, chairman of the War Production Board, in a letter to 25,000 members of coal-using industries.

In his letter, Mr. Krug said that "the prospect of a coal shortage is such that the cost of storing coal should be looked upon as low cost insurance for an adequate supply of coal for a given industry." He pointed out that "the deficit in coal production will be greater than in any previous year of the war." The deficit, it has been estimated, will be at least 25,000,000 tons, and "perhaps much greater." Mr. Krug's letter indicated that stockpiling was being urged "in order to encourage full production of coal and efficient "utilization of our transportation system."

O. D. T. Restores to Service Two M. & St. L. Trains

At the urgent request of residents in the area affected, the Office of Defense Transportation last week gave permission to officers of the Minneapolis & St. Louis to restore to service trains No. 17 and 18 between Ft. Dodge, Iowa, and Winthrop, Minn. The trains, which are the only passenger units on that line, were ordered discontinued last March because of lack of patronage.

Scrap Salvage Director Pleased with Railroads' Response

Calling railroad response "enthusiastic" to appeals for redoubled efforts in iron and steel scrap salvage, W. Thomas Hoyt, director of the Conservation and Salvage division of the War Production Board, stated recently that "even small roads such as switching lines with only a few miles of track have been turning in their heavy scrap regularly," and this, he said, "in spite of the severest winter in over 20 years and a pressing man-power shortage."

He observed that despite the handicap of weather, the Baltimore & Ohio record for February, 1945, had exceeded by 470 tons its scrap collection of the same month a year ago. Several railroads, he added, are arranging special drives to insure continued vigilance in the movement of scrap from yards and along the lines. The Nickel Plate, he noted, keeps a locomotive crane attached to its road supply train for scrap pick-up.

I. C. C. Service Orders

The Interstate Commerce Commission has issued Service Order No. 305, effective from May 14 through July 15, unless otherwise ordered, prohibiting the holding for orders, reconsignment or diversion of refrigerator cars loaded with potatoes or watermelons at any station in Florida, Georgia, North Carolina, South Carolina, or Virginia on the lines of the following railroads: Atlantic Coast Line; Chesapeake & Ohio; Norfolk & Western; Norfolk Southern; Richmond, Fredericksburg & Potomac; Seaboard Air Line; Southern; Virginian; and Winston-Salem Southbound.

The expiration date of Service Order No. 302, which authorizes rerouting of freight where lines in Oklahoma, Missouri and Kansas are affected by flood conditions, has been extended by Amendment No. 2 thereto through May 15.

General Permit No. 1 under Revised Service Order No. 300 has been further

amended to extend the authorization of icing or re-icing within specified limits of refrigerator cars loaded with potatoes to include those loaded at points in Escambia county, Florida. General Permit No. 4 under the same order removes from the restrictions of this order mixed shipments of potatoes and other vegetables provided the potatoes in each car do not exceed 50 per cent of the applicable tariff minimum weight. This permit was effective May 3 and expires June 30, unless otherwise ordered.

Service Order No. 262, restricting refrigeration of citrus fruit originating in Florida, has been set aside, effective May 9, by No. 262-A.

Certain modifications in the territorial limits of the permit areas set up under Service Order No. 304, which applies, generally speaking, to shipments of grain from western points to states east of Lake Michigan and the Mississippi river, have been made by Amendment No. 1 thereto, effective May 8. The description of the Southwest Permit Area (outlined in *Railway Age* of April 28, page 760) has been changed to include Cairo, Ill., and the destination territory for which permits are required for shipments from that area has been modified to exclude Cairo. The description of the Central Permit Area has been modified by the addition of the following points to those excepted from the general territorial bounds: Itasca, Wis.; Indianapolis, Ind., and Lawrenceburg; Cincinnati, Ohio; and Louisville, Ky. These same points, except Itasca, are likewise added to the group of destination points for which permits are not required from this area.

The ban on racing having been lifted by Director Vinson of the Office of War Mobilization, as noted elsewhere herein, the commission on May 9 vacated Service Order No. 271, which had been issued December 30, 1944, to prohibit rail shipments of race horses or dogs except under permits issued by the director of the commission's Bureau of Service.

"Adequate Block System" Again Recommended by I. C. C.

The Interstate Commerce Commission, in a report prepared under supervision of Commissioner Patterson, has recommended that the Bangor & Aroostook "establish an adequate block system" on that portion of its main line where a head-on collision occurred, on March 23, between an 8-car passenger train and a freight engine and caboose. The cause of the accident was found to be "failure to obey a meet order." It resulted in the death of three employees and the injury of a mail clerk and 5 employees.

The collision occurred at 9:35 p.m. near Ingalls, Me., on the road's main line. It was snowing and a 3-deg. curve limited the view of the enginemen. Train operations were by timetable and train orders on this portion of the road. The specific cause of the accident was the erroneous belief of the enginemen of the passenger train that the opposing train had been in the clear on a siding at Ingalls when they passed that point, where they were under orders to meet it.

Supply Trade

Carl G. Howard has been appointed railroad sales representative of the **Stromberg-Carlson Company,** with headquarters in Chicago as heretofore.

The West Pullman plant of the Ingersoll Steel & Disc division of the **Borg-Warner Corporation** has been awarded the Army-Navy "E."

The **Union Metal Manufacturing Company,** Canton, Ohio, has been awarded the Army-Navy "E" for the third time for high achievement in the production of war materials.

Division One, the Diversey Parkway, Chicago, plant of the **Stewart-Warner Corporation,** has been awarded a third renewal of its Army-Navy "E" for continued excellence in war production.

Gorham W. Woods, for the past three years process engineer of the Dickson gun plant of the Hughes Tool Company of Houston, Tex., has been appointed research engineer of the **Lincoln Electric Company,** Cleveland, Ohio.

Clarence H. Schuettenberg, St. Louis, Mo., district sales manager for the stoker division of the **Link-Belt Company,** of Chicago, has been appointed sales manager of that division with headquarters at the company's Caldwell plant in Chicago.

John A. Comstock, formerly engineering metallurgist with the United Aircraft Corporation of East Hartford, Conn., has been appointed director of research and metallurgy for all divisions of the **H. K. Porter Company,** Pittsburgh, Pa.

Carl L. Zak, manager of tubular sales, has been appointed assistant general manager of sales of the **Pittsburgh Steel Company,** Pittsburgh, Pa., and **E. R. Smith,** assistant manager of sales, oil country tubular goods, has been appointed manager, oil country tubular sales.

Nicholas H. Arnold, who for the past two years has been associated with the United States Railway Mission in Mexico, has been appointed assistant to the vice-president of the **Standard Railway Equipment Company,** with headquarters at Chicago.

The Buda Company, Harvey, Ill., has announced the opening of four new sales and service offices as a means of increasing facilities for the user of Buda products. The new branches are located at Portland, Me.; Cincinnati, Ohio; Columbia, S. C., and Regina, Sask.

A. Milne & Co. has been appointed national distributor for wrought iron bars manufactured by the **A. M. Byers Company,** Pittsburgh, Pa. The Milne organization operates warehouses in New York, Chicago, Boston, Mass., and Pittsburgh, Pa., and Philadelphia, and an office in Washington, D. C.

Lloyd B. Smith, son of the late L. R. Smith, for many years chairman of the board of the **A. O. Smith Corporation,** has been elected vice-president of the company and a member of the board. **Morris J. Vollmer,** formerly assistant to the president, has been appointed assistant secretary and assistant treasurer.

R. C. Geekie, assistant to the president in charge of sales, has been elected vice-president in charge of sales of the **Scullin Steel Company. B. L. Norton,** sales agent in New York, has been appointed assistant vice-president, with offices in New York; **F. H. Spenner,** chief mechanical engineer, has been appointed assistant vice-president in charge of engineering, and **W. H. Coburn** has been appointed assistant comptroller.

The **Monroe Auto Equipment Company,** Monroe, Mich., developers of vertical-acting hydraulic shock absorbers and torsion sway bars for use on streamlined railroad passenger cars, has purchased a private Pullman car for test purposes in further developing and improving vertical and horizontal shock absorbers, sway bars, anti-galloping devices and other equipment designed to improve the riding qualities of railroad cars.

George Spatta, executive vice-president, has been elected president of the **Clark Equipment Company,** Buchanan, Mich., to succeed the late Albert S. Bonner. Mr. Spatta formerly was employed with the General Electric Company. He joined the Clark organization in 1927, serving successively as development engineer, chief engineer, general manager, and executive vice-president. **John G. Mack** has been elected a vice-president and director of the company.

The **Pittsburgh Steel Foundry Corporation,** Glassport, Pa., has acquired a controlling interest in the **Pittsburgh Spring & Steel Co.,** which will be operated under its present corporate name as a division of the Pittsburgh Steel Foundry. The following officers have been elected for the Pittsburgh Spring division: **G. D. Thompson,** president; **E. S. Weidle,** vice-president; **M. A. Colville,** treasurer; **Winthrop B. Braun,** secretary; and **David W. Kettering,** assistant secretary treasurer.

P. R. Mork, vice-president in charge of sales, has been elected executive vice-president of the **Crane Company,** Chicago, and **J. A. Dwyer,** general manager of sales and branches, has been elected vice-president in charge of sales. Mr. Mork began his career in the company's Minneapolis branch warehouse in 1901. He was appointed manager of the Duluth, Minn., branch in 1911. He was appointed manager of the Minneapolis branch in 1924, manager of the New York branch in 1927, and vice-president in 1931. He was transferred to the general office in Chicago as vice-president in charge of sales in 1934. After military service in the first world war, Mr. Dwyer returned to the Crane branch in Philadelphia, Pa., and was successively estimator, salesman, chief clerk, sales manager, assistant branch manager, and, in 1935, manager. He was promoted to district manager in 1937, transferred to Chi-

cago as manager of branch houses in 1943, and appointed general manager of sales and branches in January, 1944.

J. L. Mullin, general superintendent of foundries, has been promoted to vice-president in charge of operations of the American Manganese Steel division of the **American Brake Shoe Company,** with headquarters in Chicago. Mr. Mullen has been associated with the manganese steel industry since 1914, when he joined the

J. L. Mullin

Edgar Allen Manganese Steel Company, predecessor of the present Brake Shoe division, as a clerk in the annealing department. He was advanced through the offices of local purchasing agent, foundry superintendent, works manager at the New Castle, Del., plant, and general superintendent of foundries.

O. A. Wallace, whose appointment to sales engineer of the **Enterprise Railway Equipment Company,** Chicago, was reported in the *Railway Age* of April 7, was born at Enfield, N. C., on September 29, 1889, and is a graduate of the King's Business College, Raleigh, N. C. He entered railway service on May 8, 1910, as a carman apprentice of the Atlantic

O. A. Wallace

Coast Line, at Rock Mount, N. C., subsequently holding several other positions with that road until 1918 when he went with the Mobile & Ohio (now the Gulf, Mobile & Ohio) as a traveling car inspector, with headquarters at Mobile, Ala. In 1921, Mr. Wallace returned to the Atlantic Coast Line as a general car inspector at Waycross, Ga., and in 1924 he was advanced to supervisor of car repairs, with headquarters at Wilmington, N. C. In 1938 he was promoted to system general car foreman, with the same headquarters, and on April 19, 1941, he was further promoted to superintendent of the car department, resigning from that position to enter the service of the Enterprise Railway Equipment Company.

The **Baldwin Locomotive Works** has formed a wholly-owned Canadian subsidiary, the **Baldwin Locomotive Works of Canada, Ltd.,** to market there such Baldwin products as turbines, water wheels, hydraulic presses, power tools and Diesel engines. **W. N. Brownlie,** formerly chief engineer of the Mutual Boiler Insurance Company of Boston, Mass., has been appointed managing director, with headquarters soon to be opened in Toronto. The new subsidiary will subcontract its orders to the United Steel Company, Ltd., which has four plants in Eastern Canada and headquarters in Toronto. All production will be under the general supervision of Baldwin of Canada and will be from Baldwin designs and specifications. Other

W. N. Brownlie

officers of the new company, all of whom are officers of the parent company, include **Ralph Kelly,** president; **W. Horace Holcomb,** vice-president; **H. D. Humphreys,** secretary and treasurer, and **T. E. McFalls,** assistant secretary and assistant treasurer.

Albert L. Bergstrom has been elected vice-president of all engineering of the **Timken Roller Bearing Company,** Canton, Ohio. Mr. Bergstrom was graduated with a degree in mechanical engineering from the Royal Technical Institute in Stockholm, Sweden. He came to this country in 1924, and was appointed designing engineer for the Stearns Conveyor Company of Cleveland, Ohio. He joined the Timken Company as development engineer in 1929. He was given various engineering and development assignments, later being appointed chief works engineer, and, in 1938, executive engineer.

O. J. Horger, formerly in charge of railway engineering and research, has been appointed chief engineer of the railway division of the Timken Roller Bearing Company; **C. L. Eastburg,** who is in active charge of the design of bearings and parts as applied to locomotives, has been appointed assistant chief engineer of the railway division and **P. C. Paterson,** who has been active in the inspection and procurement of material and in equipment applications, has been appointed manager of the division.

Herbert L. Mausk has been appointed manager of railway sales of the **National Malleable & Steel Castings Co.** Mr.

Herbert L. Mausk

Mausk joined National Malleable in the drafting department in 1907, rising to the position of assistant chief draftsman. In 1918 he was assigned to the company's Washington, D. C., railway sales office to assist in engineering work, and later was appointed sales agent in that territory. He was returned to the general offices in Cleveland, Ohio, for special engineering work in 1931, and was appointed Cleveland district sales manager in 1933.

George R. Farrell has been appointed Cleveland district sales manager to succeed Mr. Mausk, and the Cleveland territory has been extended to include the Pittsburgh, Pa., district. Mr. Farrell joined National

George R. Farrell

Malleable in 1907 as an inspector of railroad materials. In 1912 he was appointed to the service department in connection with the railway sales division of the company's business, and in 1922 he was appointed sales agent and assigned to the Philadelphia, Pa.,

News Department continued on second right-hand page

office. **James A. Slater** is vice-president in charge of railway sales for the National Malleable & Steel Castings Co.

Theodore J. Mitchell, acting western manager of special industrial sales of **E. I. du Pont de Nemours & Co.**, has been promoted to western manager of that department, with headquarters at Chicago. He succeeds to the duties of **Frank H. Crawford**, whose death on March 24 is reported elsewhere in this issue.

OBITUARY

Frank H. Crawford, western manager of special industrial sales of E. I. du Pont de Nemours & Co., who has been on leave of absence since last September due to illness, died at his home in Wilmette, Ill., on March 24.

Equipment and Supplies

LOCOMOTIVES

The SEABOARD AIR LINE has ordered 14 Diesel-electric passenger locomotives from the Electro-Motive division of the General Motors Corporation for delivery this summer.

FREIGHT CARS

The MISSOURI PACIFIC has ordered 50 covered hopper cars of 70 tons' capacity from the American Car & Foundry Co.

The TEXAS & PACIFIC has ordered 50 steel covered hopper cars of 70 tons' capacity from the American Car & Foundry Co.

SIGNALING

The DELAWARE, LACKAWANNA & WESTERN has placed an order with the Union Switch & Signal Co. for 12 sets of cab signal equipment to be installed on new Diesel-electric locomotives which will operate over cab signal territory between Scranton, Pa., and Buffalo, N. Y.

The BALTIMORE & OHIO has ordered a 10-lever table interlocker from the General Railway Signal Company. The interlocker will be installed at Galatea, Ohio, and will control 6 signals and 7 electric switch machines at a junction and 3 crossovers at North Baltimore, Ohio.

The ELECTRO-MOTIVE CORPORATION has ordered 31 sets of intermittent train control equipments from the General Railway Signal Company. Twelve are for Diesel-electric freight locomotives on the Southern and the Alabama Great Southern, 19 are for Diesel-electric passenger locomotives; 1 for the Alton, 12 for the Southern, and 6 for the Atlantic Coast Line and the Florida East Coast.

Construction

CENTRAL OF NEW JERSEY.—This railroad has awarded a contract for the reconstruction of the superstructure of its bridge at Jackson avenue, Jersey City, N. J., at estimated cost of $39,907, to the Ell-Dorer Contracting Company, Irvington, N. J.

NEW ORLEANS, TEXAS & MEXICO.—This road has applied to the Interstate Commerce Commission for authority to construct certain connecting tracks required for its proposed operation under trackage rights over a combination rail-highway bridge over the Mississippi river near Baton Rouge, La. The proposed connecting tracks on the west bank will be 1.45 miles in length, while the east-bank track will be 0.67 miles to a connection with the Yazoo & Mississippi Valley.

SEABOARD AIR LINE.—This railroad has authorized and awarded contracts for the construction of transfer facilities at Greenwood, S. C., at estimated cost of $23,000, and at Hamlet, N. C., at estimated cost of $63,000.

SOUTHERN.—This railway has authorized the reconstruction of its steel bridge over Accotink Creek near Springfield, Va., at estimated cost of $443,000. The railroad has awarded contracts to renew its Cahaba River bridge near Baines, Ala., at estimated cost of $78,810, as follows: for concrete work—the MacDougald Construction Company, Atlanta, Ga.; for steel work—the Mount Vernon Bridge Company, Mount Vernon, Ohio.

Financial

CANADIAN PACIFIC.—*Freight Rate Increase Needed.*—Citing the sharp increases that have occurred in labor and material costs since the outbreak of the war—labor unit costs 25 per cent, steel rails 23 per cent, cross-ties 90 per cent, coal 35 per cent, to mention only a few items—increases that added approximately $43,000,000 to the operating expenses of the Canadian Pacific for 1944, D. C. Coleman, president, at the annual meeting on May 2, declared that if labor and material costs are to be maintained at anything like the present level, justice will require that Canadian railways be permitted to obtain such increases in freight rates as the Board of Transport Commissioners may find reasonable.

Mr. Coleman pointed to the fact that while 1944's gross was the highest in the company's history, net earnings were lower than in many years of normal operations. This condition has been due, he said, to the effect on the company's operations of price and wage control which, necessary and desirable though they may be, have borne with peculiar severity upon the operations of railways. Mr. Coleman said that the high point of wartime freight traffic apparently has been passed.

CENTRAL OF GEORGIA.—*Annual Report.*—The 1944 annual report of this road shows a net income, after interest and other charges, of $1,201,164 as compared with a net income of $1,940,663 in 1943. Selected items from the income statement follow:

	1944	Increase or Decrease Compared With 1943
Average Mileage Operated	1,815.65	.....
RAILWAY OPERATING REVENUES	$38,987,758	+$57,991
Maintenance of way and structures	5,007,821	+998,896
Maintenance of equipment	6,277,752	+1,317,840
Transportation—rail line	14,275,386	+2,400,409
TOTAL OPERATING EXPENSES	28,093,516	+4,913,648
NET REVENUE FROM OPERATIONS	10,894,243	−4,855,658
Railway tax accruals	3,777,042	−4,198,970
RAILWAY OPERATING INCOME	7,117,201	−656,687
Equipment rents—Net Dr.	578,274	+272,192
Joint facility rents—Net Dr.	141,636	+19,385
NET RAILWAY OPERATING INCOME	6,397,292	−948,264
Non-operating income	553,147	−119,995
GROSS INCOME	6,950,439	−1,068,259
Rent for leased roads and equipment	580,591	−803,526
Interest on funded debt	3,062,262	−41,537
TOTAL DEDUCTIONS FROM GROSS INCOME	5,749,275	−328,759
NET INCOME	1,201,164	−739,500

CHICAGO, ROCK ISLAND & PACIFIC.—*Three Directors Elected.*—John Gerdes, Gerdes & Montgomery; Albert H. Grant, Vilas & Hickey, and Darraugh A. Park, president of the Manufacturers' Trust Company, all of New York, have been elected members of the board of directors of the Chicago, Rock Island & Pacific.

DELAWARE, LACKAWANNA & WESTERN.—*Approves Mergers.*—At the annual meeting, stockholders of the Delaware, Lackawanna & Western approved agreements for merging the Utica, Chenango & Susquehanna Valley, the Morris & Essex, and the Oswego & Syracuse into the Lackawanna. Resolutions for the issuance of securities to effectuate the mergers also were approved. William White, president, told stockholders that when the proposed program of merger of seven leased lines becomes effective, fixed charges of the Lackawanna will be reduced $1,100,000 a year. Mr. White disclosed that a merger agreement has been reached with directors of the Warren Railroad and probably will be executed by both railroads by June 1.

FRANKLIN & CAROLINA.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this company, organized in 1944 and controlled through stock ownership by the Chesapeake-Camp Corporation, a lumber producer, to acquire and operate the lumber company's line of railroad from Franklin, Va., to Franklin Junction, 19.7 miles. The purchase price, $98,425, is to be paid through issuance of stock.

KANSAS CITY SOUTHERN.—*Will Redeem Outstanding Bonds.*—The Kansas City Southern has called for redemption on July 1 of all of its $21,000,000 outstanding refunding and improvement five per cent

mortgage bonds due in 1950 at 105 and accrued interest.

KANSAS CITY SOUTHERN.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $7,700,000 of promissory notes in evidence of loans to be made in equal amounts by the New York Trust Company and the Bankers Trust Company, the proceeds of which are to be applied to the retirement of the $14,000,000 outstanding of its refunding and improvement mortgage bonds due in 1950, which are callable at 105. The company and its affiliates already own about $7,000,000 of the issue to be retired. The transaction is part of the company's program for refunding its outstanding indebtedness. The notes will bear interest at 2½ per cent, while the issue being retired carried a 5 per cent interest rate. Thus a net reduction in fixed charges of $1,835,625 is expected, and in addition, the division pointed out, the company will be able to anticipate with a greater degree of certainty its ability to cope with post-war conditions.

KANSAS, OKLAHOMA & GULF.—*Awards Bonds.*—On May 8, the Kansas, Oklahoma & Gulf awarded its $4,400,000 of new first mortgage bonds, due May 1, 1980, to Halsey, Stuart & Co. and associates, on a bid of 99.059 for a 3⅜ per cent interest rate. The bonds were reoffered to the public at 100½. Net proceeds from the sale, together with treasury funds, will be applied to the redemption next July 1 of $4,450,000 of first mortgage 5 per cent gold bonds. The company also will surrender for cancellation $324,000 of the 5 per cent bonds now held in the treasury. Upon completion of the proposed financing, the company's only funded debt will be new issue. Also outstanding will be $11,470,000 of four classes of preferred stock, the major part of which is owned by the Muskogee Company. Operating revenues for 1944 were $4,097,959, and income available for fixed charges was $842,004.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Annual Report.*—The 1944 annual statement of this road shows a net income, after interest and other charges, of $1,038,308 as compared with a net deficit of $1,340,553 in 1943. Selected items from the income statement follow:

	1944	Increase or Decrease Compared With 1943
RAILWAY OPERATING REVENUES	$29,886,386	+$3,442,228
Maintenance of way and structures	4,848,273	+268,723
Maintenance of equipment	4,819,516	+440,274
Transportation	10,580,518	+1,220,408
TOTAL OPERATING EXPENSES	21,497,840	+1,869,733
Operating ratio	71.9	−2.3
NET REVENUE FROM OPERATIONS	8,388,546	+1,572,495
Railway tax accruals	2,840,791	+1,024,879
RAILWAY OPERATING INCOME	5,547,755	+547,616
Hire of equipment—Net Cr.	302,237	−33,748
Joint facility rents—Net Dr.	139,823	−55,309
NET RAILWAY OPERATING INCOME	5,710,169	+569,077
Non-operating income—Net	139,529	+34,203
GROSS INCOME	5,849,698	+603,180
TOTAL FIXED CHARGES	4,405,359	−2,181,712
Contingent charges	406,031	+406,031
NET INCOME	1,038,308	+2,378,861

PENNSYLVANIA.—*Awards Bonds.*—On May 8, the Pennsylvania awarded $52,981,000 of general mortgage bonds, series G, due in 1985, to the Equitable Life Assurance Society, on a bid of 100 for a 3 per cent coupon. The Equitable Life bid for its own account and the bonds will not be reoffered. (Previous item in *Railway Age* of April 28, page 777.)

RIO GRANDE SOUTHERN.—*Receiver's Certificates.*—This road has asked the Interstate Commerce Commission for authority to issue $60,000 of 2-year 4 per cent receiver's certificates for a bank loan, the proceeds of which are to be applied to rehabilitation of its property.

WHEELING & LAKE ERIE.—*Annual Report.*—The 1944 annual statement of this road shows a net income, after interest and other fixed charges of $3,021,383, as compared with a net income of $3,390,129 for 1943. Selected items from the income statement follow:

	1944	Increase or Decrease Compared With 1943
RAILWAY OPERATING REVENUES	$25,101,090	−1,027,134
Maintenance of way and structures	2,781,610	+55,962
Maintenance of equipment	4,632,998	+94,882
Transportation—rail line	7,525,024	+176,577
TOTAL OPERATING EXPENSES	16,093,919	+389,627
Operating ratio	64.12	+4.02
NET REVENUE FROM OPERATIONS	9,007,172	−1,416,761
Railway tax accruals	7,645,607	−843,643
RAILWAY OPERATING INCOME	1,361,565	−573,118
Net rents—Cr.	1,990,872	+180,892
NET RAILWAY OPERATING INCOME	3,352,437	−392,226
Total other income	266,297	+59,617
TOTAL INCOME	3,618,734	−332,609
TOTAL FIXED CHARGES	579,680	+37,237
NET INCOME	3,021,383	−368,746

WISCONSIN CENTRAL.—*Belt Railway Stock.*—This road has applitd to the Interstate Commerce Commission for authority to acquire the 2,400 shares of stock of the Belt Railway of Chicago which have been held by the Minneapolis, St. Paul & Sault Ste. Marie, and thus to become a joint owner of the terminal line in place of the Soo, which has held control of the Wisconsin Central, now undergoing reorganization.

Average Prices Stocks and Bonds

	May 8	Last Week	Last Year
Average price of 20 representative railway stocks	54.38	54.31	39.58
Average price of 20 representative railway bonds	99.42	98.59	87.73

Dividends Declared

Pittsburgh, Bessemer & Lake Erie.—8% preferred, $1.50, semi-annually, payable June 1 to holders of record May 15.

Rutland & Whitehall.—$1.05, payable May 15 to holders of record May 1.

Troy & Greenbush.—$1.75, semi-annually, payable June 15 to holders of record May 31.

Abandonments

DELAWARE, LACKAWANNA & WESTERN.—This company and the Hoboken Ferry Company, lessor, have applied to the Interstate Commerce Commission for authority to abandon operation of ferry service from Hoboken, N. J., to West 23rd Street, New York.

NEW ORLEANS, TEXAS & MEXICO.—This road has applied to the Interstate Commerce Commission for authority to abandon car ferry operations across the Mississippi near Baton Rouge, La. The abandonment would be part of a plan whereby the road proposes to operate over a new rail-highway bridge in the vicinity.

TEXAS & NEW ORLEANS.—This road has applied to the Interstate Commerce Commission for authority to abandon segments of two of its branch lines in Louisiana—one between Youngsville and Milton, 4.3 miles, and the other between Long and Milton, 4.5 miles.

Railway Officers

EXECUTIVE

Addison R. Smith, whose retirement as vice-president—traffic—of the Louisville & Nashville, with headquarters at Louisville, Ky., was reported in the *Railway Age* of April 28, was born at Louisville on March 30, 1872, and entered railway service as a clerk of the L. & N. on July 1, 1889. He held several positions, and also served as secretary of the Southeastern Mississippi Valley Association, until July 10, 1899, when he went with the Southern as chief clerk of the assistant freight traffic manager at Louisville. On January 1, 1904, Mr. Smith became general freight agent of the Western of Alabama and the Atlanta & West Point, with headquarters at Montgomery, Ala. In June, 1905, he returned to the L. & N. and was elected third vice-president, and in 1918 he was appointed assistant regional director, Southern region,

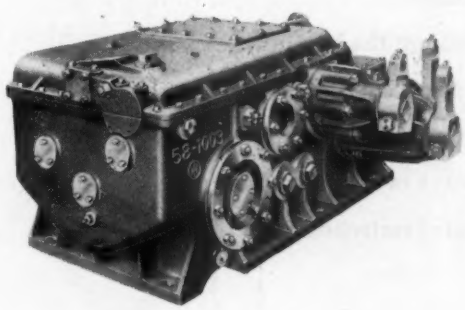
Addison R. Smith

News Department continued on next left-hand page

The Pennsylvania Railroad's New Multiple Cylinder Locomotives for Passenger or Freight Service

are equipped with

THE FRANKLIN SYSTEM OF STEAM DISTRIBUTION

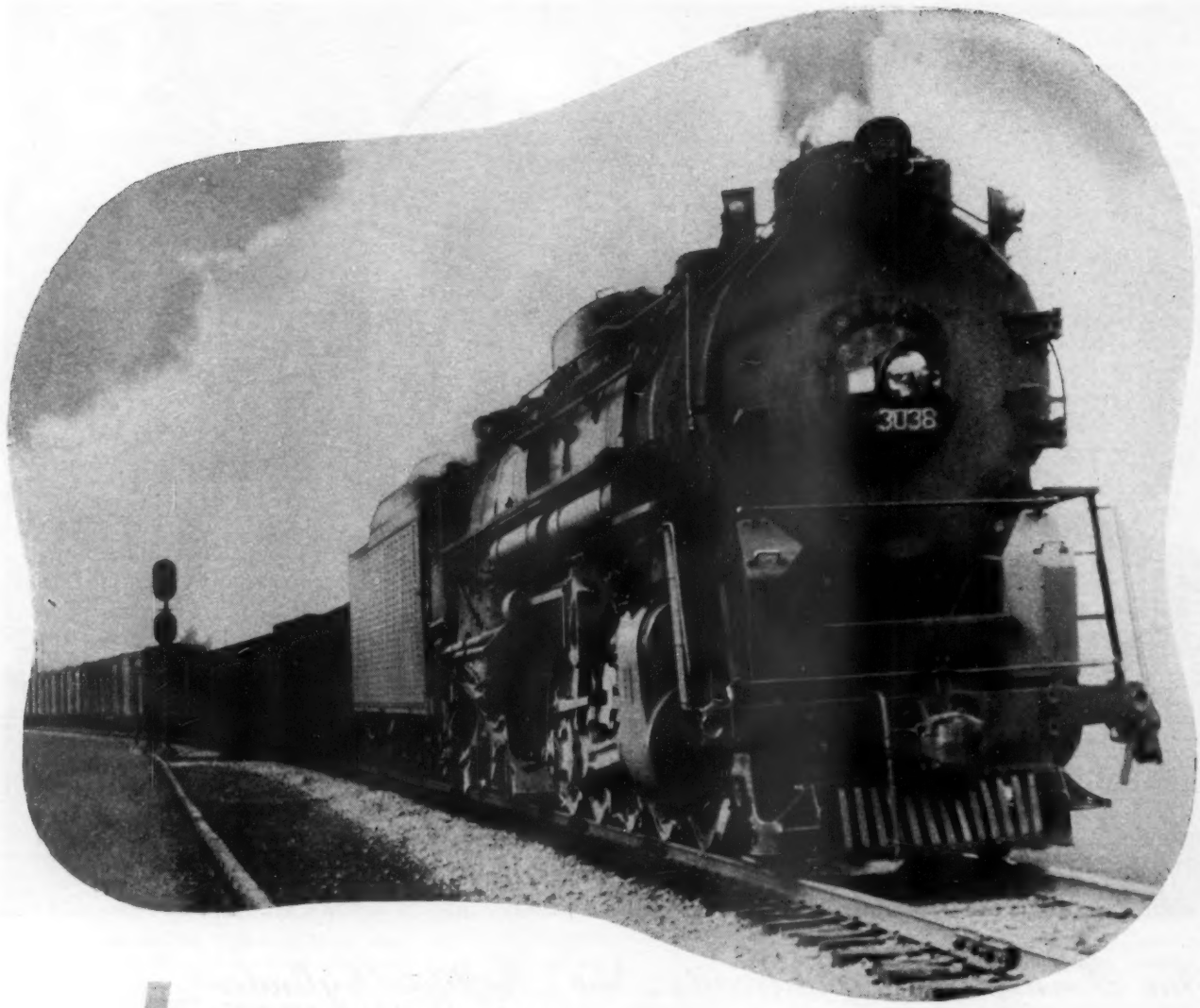


The Pennsylvania Railroad is to be congratulated on the development of these streamlined giants. These locomotives develop more horsepower at 100 miles per hour than any other engines ever built. Franklin is proud that its System of Steam Distribution is one of the contributions to this achievement.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO

In Canada: **FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL**



TO *Increase* FREIGHT CAR AVAILABILITY

LIMA Steam Locomotives, by enabling railroads to maintain faster freight schedules, do more than cut down delivery time that may be vital to the war effort.

They also greatly increase freight car availability by reducing the hours between loading point and destination.

Although the need of getting maximum service from every freight car is spotlighted by wartime emergencies, it always will be a vital factor in successful railroading.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

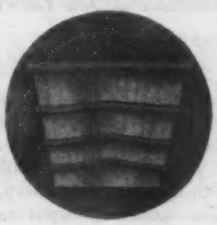
MORE *Mileage* FROM EVERY TON of COAL

● Because the railroads have first to haul every ton of coal their locomotives burn, it is doubly important these days that coal be utilized most efficiently and economically.

Experience has proved that maximum production of steam from a ton of coal is secured only when the locomotive firebox is equipped with a complete brick arch.

Consequently from the standpoint of fuel cost alone, it is unprofitable to operate any locomotive without a complete arch.

HARBISON-WALKER REFRACTORIES CO.
Refractories Specialists



AMERICAN ARCH CO. INC.
60 East 42nd Street, New York 17, N. Y.
Locomotive Combustion Specialists

of the United States Railroad Administration, remaining in that position until the end of federal control. On March 1, 1920, Mr. Smith returned to the L. & N. as vice-president—traffic—the position he held at the time of his retirement.

William Culver White, whose election to vice-president of the Gulf, Mobile & Ohio, with headquarters at Jackson, Tenn., was reported in the *Railway Age* of April 28, was born at Washington, D. C., on March 4, 1907, and received his higher education at the University of Alabama. He entered railway service in 1937 as a special counsel of the Gulf, Mobile & Northern (now a part of the G. M. & O.) with headquarters at Jackson. On January 1, 1944, Mr. White was promoted to assistant to the president of the G. M. & O., with the same headquarters, and in April of the same year he was elected a member of the board of directors of that road. In addition to being elected to his new position Mr. White was also re-elected to the board.

C. R. Zarfoss, whose promotion to vice-president, traffic, of the Western Maryland with headquarters at Baltimore, Md., was announced in the *Railway Age* of May 5, was born on October 17, 1907, in York county, Pa. He attended West York high school and Thompson College and entered railroad service on May 1, 1926, as general

©Bachrach

C. R. Zarfoss

clerk in the transportation department of the Western Maryland. In June, 1927, he became chief clerk, being appointed contracting freight agent in August, 1932, and traveling freight agent in January, 1933. He was named secretary to the president in August, 1937, and the following December he was appointed industrial agent. In March, 1942, Mr. Zarfoss was advanced to assistant to the president at Baltimore, the position he held at the time of his recent elevation to vice-president, traffic, there.

FINANCIAL, LEGAL AND ACCOUNTING

Herbert H. Brown, whose promotion to auditor of freight accounts of the Great Northern, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of May 5, was born at Rochester, Minn., on July 21, 1884, and attended Hamline University, St. Paul. He entered railway service with the Great Northern on August 20, 1907, and in 1911 he was promoted to head of the statistical bureau at St. Paul, which city has been his headquarters throughout his career. On June 1, 1920,

Herbert H. Brown

Mr. Brown was advanced to head of the local bureau of the freight receipts division, and 10 years later he was appointed supervisor of the tabulating bureau. On January 1, 1941, he was promoted to assistant auditor of freight receipts, the position he held at the time of his new appointment.

R. W. Woody has been appointed assistant auditor of revenues of the Chesapeake & Ohio at Richmond, Va.

Alexander J. Pharr, whose retirement as comptroller of the Louisville & Nashville, with headquarters at Louisville, Ky., was reported in the *Railway Age* of April 28, was born at Trion, Ga., on January 6, 1868, and entered railway service on March 1, 1890, as a clerk of the Atlanta & West Point and the Western of Alabama, holding

Alexander J. Pharr

various positions with these roads until 1892 when he went with the Nashville, Chattanooga & St. Louis as a stenographer at Nashville, Tenn. In July, 1900, Mr. Pharr went with the Great Northern, being assigned to the operating department at Spokane, Wash., and later being transferred to Butte, Mont. In December, 1901, he was appointed a clerk in the office of the comptroller of the L. & N., at Louisville, subsequently serving as general bookkeeper, chief clerk to the comptroller and assistant comptroller until November 1, 1916, when he was promoted to the position he held at the time of his retirement.

Chandler W. Durbrow, general solicitor of the Southern Pacific, with headquarters at San Francisco, Cal., has retired after 42 years of service. Mr. Durbrow was born in San Francisco on January 28, 1876, and graduated from Yale University in 1902. He entered railway service on the Southern Pacific on January 2, 1903, and after serving in various positions in the legal department of that road, was advanced to attorney with headquarters at San Francisco, on March 19, 1927. A month later he was promoted to valuation counsel, and in July, 1933, he was further advanced to assistant general solicitor. In June, 1939, Mr. Durbrow was promoted to the position he held at the time of his retirement.

OPERATING

George Eckhardt, whose promotion to superintendent of the St. Joseph division of the Chicago, Burlington & Quincy, with

George Eckhardt

headquarters at St. Joseph, Mo., was reported in the *Railway Age* of April 14, was born at Friend, Neb., on August 27, 1888. He entered railway service on February 22, 1904, as a station helper of the Burlington, and in September of the same year he was promoted to telegraph operator, serving in that capacity at various points of the road until October, 1914, when he became train dispatcher and later night chief train dispatcher, with headquarters at Alliance, Neb. In November, 1925, Mr. Eckhardt was advanced to chief dispatcher at Casper, Wyo., and in July, 1936, he was further advanced to train master at St. Joseph. Three years later he was promoted to assistant to the general manager, Lines West, with headquarters at Omaha, Neb., the position he held at the time of his new promotion.

A. J. Millan, supervisor, replacement schedules, of the Southern at Washington,

News Department continued on next left-hand page

COAL... *The Black Diamond*

The COAL industry in this country is one of the largest and practically all of this commodity is transported by RAIL. According to statistics, it represents up to 35% of the total freight hauled by the railroads.

COAL is an essential factor in rail motive power today and will be available for tomorrow's modern steam locomotives.

The products of this company have been and will continue to be factors in conserving this vital commodity, and raising the boiler efficiency of tomorrow's locomotives.

A-1716

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO

Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

D. C., has been promoted to superintendent, joint facilities, with the same headquarters.

J. M. Collins, acting superintendent of the dining car department of the Erie at Jersey City, N. J., has been appointed superintendent of dining cars, and his former position has been abolished.

J. F. Flemming, assistant superintendent of the Canadian Pacific at Brownville Junction, Me., has been transferred to the Farnham division, Farnham, Que., succeeding **H. R. Worth,** transferred.

L. M. Olson, acting superintendent of the Pecos division of the Atchison, Topeka & Santa Fe at Clovis, N. M., has been promoted to superintendent of the Slaton division, with headquarters at Slaton, Tex., succeeding **J. N. Landreth,** who has been acting superintendent of that division during the absence on sick leave of **H. R. McKee,** who has now retired. Mr. Landreth returns to his former position of trainmaster of the New Mexico division, with headquarters at Las Vegas, N. M., replacing **R. M. Champion,** who has been transferred to La Junta, Colo., relieving **A. R. Greer,** who in turn has been appointed transportation inspector, with headquarters at Dodge City, Kan. **Dan Frahey,** who has also been on sick leave, has returned to his position of superintendent of the Pecos division, succeeding Mr. Olson.

TRAFFIC

J. W. Bateman has been appointed general agent of the Missouri Pacific, with headquarters at Houston, Tex., succeeding **C. W. Adams,** who has resigned.

Ben F. Morris, whose promotion to freight traffic manager—rates and charges—of the Louisville & Nashville, with headquarters at Louisville, Ky., was reported in the *Railway Age* of April 28, was born at Sulphur, Ky., and entered the service of the L. & N. on February 1, 1907, in the mailing department of the office of the auditor of receipts at Louisville. Shortly thereafter he was transferred to the general freight

Ben F. Morris

office, and after six years in that department he was transferred to the commerce branch of the general traffic department, where he became chief clerk in 1923. Three years later Mr. Morris was appointed commerce agent, a newly-created position, and on March 1, 1928, he was further advanced to the position of assistant to the freight traffic manager. In this capacity much of Mr. Morris' time was occupied as secretary of the Fourth Section Committee of the southern carriers, until the committee was disbanded in March, 1931. During this period he was located at Atlanta, Ga., then returning to Louisville. In May, 1937, he was promoted to assistant to the vice-president in charge of traffic, the position he held at the time of his new appointment.

John K. Dent, whose promotion to coal traffic manager of the Louisville & Nashville, with headquarters at Louisville, Ky., was reported in the *Railway Age* of May 5, was born at Leitchfield, Ky., and entered the service of the L. & N. on September 5, 1905, as a clerk in the general freight office. After serving in various positions in that office and in the commerce and traffic departments, he was advanced to junior assistant to the vice-president in charge of traffic, with headquarters at Louisville. In September, 1923, Mr. Dent was promoted to assistant general freight agent at Louisville, and on January 1, 1935, he was advanced to senior assistant to the vice-president in charge of traffic. On March 31, 1937, he resigned to enter the financial field, but

John K. Dent

returned to the L. & N. on January 16, 1938, as assistant to the general freight agent at Louisville. On April 1, 1939, he was promoted to assistant general coal agent with headquarters at Louisville, and in November of the same year he was advanced to general coal agent, the position he held at the time of his new appointment.

A. W. Symes, chief freight tariff clerk of the Canadian National at Montreal, Que., has been appointed chief of the freight tariff bureau, Central and Atlantic regions, succeeding **W. I. Alexander,** deceased.

J. K. Bleakmore, who has been on leave of absence from the Chicago, Rock Island & Pacific for the past two years to serve with the Transportation Corps of the United States Army, has returned to his position of general agent, with headquarters at Camden, Ark.

S. Van Auken, Jr., commercial agent of the Seaboard Air Line at Rochester, N. Y., has been appointed general agent there, and his former position has been abolished. **H. E. Schuneman,** district freight agent at Washington, D. C., has been named general agent at Pittsburgh, Pa., and **E. Q. Davis** has been named to succeed him as district freight agent at Washington.

G. T. F. Schreiber, general agent of the Seaboard Air Line at Pittsburgh, Pa., has been promoted to general western agent, with headquarters at Chicago, succeeding **David P. Grier,** whose retirement after 41 years of service was reported in the *Railway Age* of April 7. **C. E. Boisseau, Jr.,** commercial agent at Cincinnati, Ohio, and **H. P. Smith,** commercial agent at St. Louis, Mo., have been promoted to general agents, with the same headquarters. The positions of commercial agent at these two points have been abolished.

ENGINEERING & SIGNALING

Walter E. Quinn, assistant division engineer of the Louisville & Nashville, with headquarters at Birmingham, Ala., has been advanced to assistant engineer in charge of the miscellaneous department at Louisville, Ky., to succeed **Howard C. Forman** who has been assigned to other duties.

Anthony J. Flanagan, assistant engineer in the office of the engineer maintenance of way—system, of the New York Central, has been promoted to the duties of George Auer, Jr., assistant engineer in the office of the engineer maintenance of way, whose promotion to division engineer at New York was announced in the *Railway Age* of May 5. **T. F. McCabe,** chief clerk to the engineer, maintenance of way—system, has been advanced to office assistant, succeeding to the duties of Mr. Flanagan.

J. Orr, whose promotion to superintendent of communications of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., was announced in the *Railway Age* of March 10, was born on June 23, 1906, at Paxton, Ill. He received his higher education at Cornell College, Mount Vernon, Iowa, and Michigan College of Mining and Technology, Houghton, Mich. Mr. Orr was employed by the Western Union until 1931 when he went with the Postal Telegraph, serving in various capacities, the last one being foreman in charge of construction, maintenance and engineering for the third plant district at Chicago. In May, 1942, he joined the Kellogg Switchboard and Supply Co. at Chicago where he received successive appointments to become staff engineer, the capacity in which he remained until his recent appointment.

Glen H. Trout, whose retirement as assistant chief engineer of the Union Pacific, with headquarters at Omaha, Neb., was reported in the *Railway Age* of May 5, was born at Basil, Ohio, on November 16, 1879, and graduated in civil engineering from the University of Washington in 1902. In July, 1902, he became a draftsman for the American Bridge Company, and in March, 1903, he went with the Phoenix Bridge Company, Phoenixville, Pa., as a draftsman and foreman. Seven months later, he entered railway service as assistant engineer, bridges and structures, on the

Oregon Short Line (now part of the Union Pacific) at Pocatello, Idaho, and later served as assistant engineer on all divisions of the O. S. L. In 1912 Mr. Trout was promoted to bridge engineer of the O. S. L. and during the first World War he served as works manager of the Chester Shipbuilding Company, Chester, Pa. He returned to railroad service in January, 1920, as bridge engineer of the Union Pacific system, and in March, 1942, he was promoted to the position he held at the time of his retirement.

E. J. Bayer, assistant district engineer of the Cleveland, Cincinnati, Chicago & St. Louis (Big Four), at Cincinnati, has been promoted to principal assistant engineer, with the same headquarters, succeeding **A. F. Maischaider,** who has retired after 43 years of service. **L. B. Elliott,** division engineer of the New York Central at Cleveland, has been advanced to assistant district engineer of the Big Four, with headquarters at Cincinnati, relieving Mr. Bayer. **C. V. Talley,** supervisor of track at Galion, Ohio, has been promoted to division engineer of the Illinois division, with headquarters at Mattoon, Ill., replacing **A. A. Keever,** who has been transferred to the New York Central at Cleveland, succeeding Mr. Elliott.

Mr. Maischaider was born at Chicago on October 6, 1882, and received his technical education at Purdue University, graduating in 1902. In June of the same year he entered railway service with the Big Four as an assistant engineer on construction. Two months later he was appointed resident engineer on construction, and in November, 1907, he was advanced to assistant division engineer. Five years later Mr. Maischaider was further promoted to division engineer, and in May, 1924, he was made engineering assistant to the general manager. In April, 1937, he was advanced to the position he held at the time of his retirement.

MECHANICAL

Lamar Earle Crevasse, whose retirement from the position of superintendent, motive power, of the Macon, Dublin & Savannah at Macon, Ga., was announced in the *Railway Age* of April 21, was born at Cedar Keys, Fla., on August 9, 1895, and entered railroading with the Atlantic Coast Line as an apprentice machinist at High Springs, Fla., in February, 1912. He served as machinist at High Springs from August, 1917, to December, 1917, when he became an instructor in the air service of the U. S. Army, returning to the Atlantic Coast Line as machinist at High Springs in April, 1919. After serving with the Florida East Coast at Miami, Fla., from September, 1919, to July, 1922, Mr. Crevasse joined the Seaboard Air Line as machinist at Jacksonville, Fla., in October, 1922, and he was named roundhouse foreman there in January, 1923. He became general foreman at Tampa, Fla., in October, 1924, and master mechanic at Palm Beach, Fla., in February, 1926, being appointed general foreman at Arcadia, Fla., two years later. Mr. Crevasse was subsequently transferred to Tampa and Raleigh, N. C., successively, until February 1, 1940, when he was named superintendent, motive power, of the Macon, Dublin & Savannah, the position he held at the time of his recent retirement because of ill health.

John Miles Nixon, whose appointment as superintendent, motive power, of the Macon, Dublin & Savannah at Macon, Ga., was announced in the *Railway Age* of April 14, was born at Rhine, Ga., on February 3, 1901, annd entered railroad service in November, 1918, as an apprentice machinist with the Georgia & Florida at Douglas, Ga. He joined the Atlanta, Birmingham & Atlantic (now the Atlanta, Birmingham & Coast) as a machinist at Fitzgerald, Ga., in 1920, and he later served in a similar capacity with the Southern, the Atlanta & St. Andrews Bay, and the Cincinnati, New Orleans & Texas Pacific (part of the Southern) until March, 1926, when he joined the Florida East Coast as lead machinist at Miami, Fla. He was named inspector in September, 1932, and in May, 1937, joined the Seaboard Air Line as machinist at Jacksonville, Fla., later transferring to Miami, Fla. Mr. Nixon was named roundhouse foreman at Wildwood, Fla., in January, 1941, and in April, 1942, he was promoted to general foreman there, the position he held at the time of his recent appointment as superintendent, motive power, of the Macon, Dublin & Savannah at Macon.

John Miles Nixon

A. G. Trumbull, chief mechanical engineer of the Advisory Mechanical Committee of the Chesapeake & Ohio, the New York, Chicago & St. Louis, and the Pere Marquette with headquarters at Cleveland, Ohio, has been appointed general mechanical engineer of the three roads at Cleveland, in addition to his regular duties.

SPECIAL

R. A. DeRossett, chief clerk in the office of the assistant vice-president of the Southern at Washington, D. C., has been appointed to the newly-created position of personnel assistant with the same headquarters.

F. C. Baker, general traffic agent of the New York, New Haven & Hartford at New York, has been appointed manager, sales and service, for that road and for the New England Steamship Co., with headquarters at Boston, Mass. **F. R. Briggs** has been named assistant manager, sales and service, also at Boston.

OBITUARY

Warwick P. Holabird, general freight agent of the New York, Susquehanna & Western at Paterson, N. J., died in a hospital at Passaic, N. J., on April 30.

Fred S. Ross, traffic manager of the Detroit & Toledo Shore Line, with headquarters at Detroit, Mich., died at his home in Birmingham, Mich., on April 29.

John Q. Busenbark, who retired in 1943 as auditor of express receipts of the Railway Express Agency, with headquarters at Chicago, died in a hopsital in that city on May 4.

Thomas A. Martin, freight traffic manager of the Illinois Northern and of the Chicago, West Pullman & Southern, and a director of the latter road, with headquarters at Chicago, died in a Milwaukee (Wis.) hospital on May 7.

Holton D. Robinson, senior partner in the firm of Robinson & Steinman, consulting engineers, at New York, died there on May 7. He was 82 years old. Early in his career Mr. Robinson was employed by the New York Central as chief draftsman, and in 1913 he was named consulting bridge engineer of the Canadian Northern (now the Canadian National), Eastern lines. Mr. Robinson later became a noted bridge engineer and played a prominent part in the design and construction of many of the world's largest bridges, including the George Washington, the Triborough, and the Thousand Islands.

George T. Atkins, executive vice-president of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., died suddenly at his home in that city on May 3. Mr. Atkins was born at Petersburg, Va., on August 13, 1878, and entered railway service in 1897, as a messenger in the office of the auditor of the Texas & Pacific at Dallas, Tex. In the following year, Mr. Atkins went with the Missouri-Kansas-Texas, where he served in various clerical positions in the auditor's office at Dallas, until 1901, when he was appointed file clerk in the same office. He then served successively as rate clerk and chief rate clerk in the same office until 1906, when he was made commercial agent for the Katy at Dallas. Later in the same year he returned to the general freight office as chief clerk, holding this position until 1910 when he resigned to become freight traffic manager of the Shreveport (La.) Chamber of Commerce. Under government control of the railroads during the World War, Mr. Atkins served as traffic assistant in the division of public service and accounting of the United States Railroad Administration, later holding the position of assistant director of the division of public service of the U. S. R. A. He returned to the Katy in 1920 as freight traffic manager of the system, holding this position until 1926, when he was elected vice-president in charge of traffic, with headquarters at St. Louis. In January, 1935, he was elected to the position he held at the time of his death.

Table of Revenues and Expenses begins on second left-hand page

IT'S A GREAT NEW DAY FOR RAILROADING

ADD SOMETHING NEW

GENERAL MOTORS
LOCOMOTIVES

IT'S A GREAT NEW DAY FOR RAILROADING

One way to meet—and surpass—
various forms of competitive freight
and passenger service after the war
is to *add something new.*

To America's finest railroads, that means
full utilization of Diesel power
in the form of General Motors Diesel
passenger and freight locomotives.

Their impressive records, as well as
their colorful and ultramodern
appearance, certainly capture and hold
the public's imagination.

ON TO FINAL VICTORY ★ BUY MORE WAR BONDS

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS CORPORATION · LA GRANGE, ILL.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1945

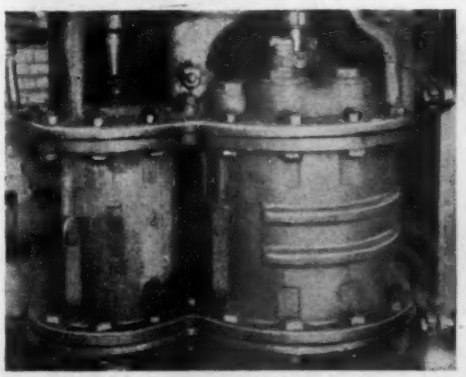
Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income: 1945	1944
Akron, Canton & Youngstown	March	171	$432,300	$108	$446,607	$63,304	$39,314	$19,357	$129,528	$269,641	60.4	$176,966	$88,322	$67,665	$75,797
	3 mos.	171	1,259,378	459	1,303,416	188,196	115,204	58,934	387,867	807,392	61.9	496,024	227,102	211,251	222,617
Alton	March	959	2,574,738	609,912	3,564,048	349,549	442,904	76,425	1,097,062	2,102,695	59.0	1,461,353	500,461	746,833	442,781
	3 mos.	959	6,352,755	1,886,166	9,295,268	940,273	1,386,111	215,998	3,209,595	6,152,686	66.2	3,142,582	1,232,314	1,335,672	1,356,555
Atchison, Topeka & Santa Fe System	March	13,115	35,601,569	8,521,606	47,343,780	6,449,064	7,396,527	622,734	12,541,170	27,899,935	58.9	19,443,845	14,304,234	5,080,678	3,792,620
	3 mos.	13,115	99,785,656	25,187,284	134,002,001	17,328,440	21,662,604	1,886,792	36,055,417	79,114,212	59.0	54,887,789	40,193,349	14,441,333	12,117,269
Atlanta & West Point	March	93	295,252	126,064	471,700	50,715	67,251	11,261	170,420	318,213	67.5	153,487	94,884	31,536	32,038
	3 mos.	93	866,445	376,720	1,375,962	154,333	182,354	32,457	518,850	944,650	68.7	431,312	254,846	92,113	92,839
Western of Alabama	March	133	288,975	134,847	462,208	59,867	75,205	11,369	148,776	312,331	67.4	150,877	106,543	39,274	39,238
	3 mos.	133	823,096	406,888	1,337,987	162,764	205,350	32,604	460,525	913,031	68.2	424,956	286,577	118,470	133,557
Atlanta, Birmingham & Coast	March	639	704,411	51,243	790,039	123,031	112,379	31,109	300,358	590,766	74.78	199,273	110,734	45,123	24,737
	3 mos.	639	2,054,439	144,165	2,290,845	337,683	344,487	90,819	816,533	1,659,775	72.45	631,070	305,462	208,841	85,641
Atlantic Coast Line	March	4,935	9,916,670	3,667,569	14,439,459	1,835,649	2,321,732	202,557	4,082,777	8,869,464	61.4	5,569,995	3,750,000	1,300,213	1,886,334
	3 mos.	4,935	27,408,097	11,033,636	40,878,422	5,071,786	6,783,291	609,310	12,084,571	25,782,155	63.1	15,096,267	10,450,000	3,081,229	4,673,847
Charleston & Western Carolina	March	343	370,184	18,870	398,517	58,183	60,316	10,880	134,248	269,811	67.7	128,706	60,000	62,263	81,411
	3 mos.	343	1,037,695	44,250	1,111,305	159,829	179,931	31,244	379,986	770,488	69.3	340,817	175,000	153,297	220,631
Baltimore & Ohio	March	6,131	26,931,606	4,062,308	32,772,608	4,264,189	6,670,826	561,200	11,422,727	24,023,701	73.3	8,748,907	3,808,535	4,070,372	4,101,481
	3 mos.	6,133	75,541,141	12,385,139	93,030,443	11,270,396	19,736,409	1,519,212	33,025,867	68,835,900	74.0	24,194,543	11,432,553	10,870,636	10,638,604
Staten Island Rapid Transit	March	29	357,921	140,508	509,503	44,342	68,105	1,328	176,766	317,599	62.3	191,904	65,242	87,896	115,864
	3 mos.	29	1,000,871	405,240	1,431,533	140,777	190,626	4,063	527,470	941,306	65.8	490,227	167,575	214,471	296,891
Bangor & Aroostook	March	602	1,390,291	74,042	1,499,139	176,488	149,671	6,889	324,617	690,677	46.1	808,462	587,883	183,821	186,578
	3 mos.	602	3,343,588	202,695	3,644,969	564,443	416,940	19,561	919,899	2,021,111	55.4	1,623,858	1,131,309	448,397	527,880
Bessemer & Lake Erie	March	214	1,057,515	2,394	1,075,581	135,269	748,576	14,550	307,309	1,243,865	115.6	—168,284	51,046	134,718	—117,808
	3 mos.	214	2,674,625	8,547	2,725,554	385,678	2,181,306	40,222	863,518	3,592,373	131.8	—866,819	157,118	—87,080	—212,762
Boston & Maine	March	1,789	5,827,153	1,501,222	7,991,550	1,134,399	1,350,143	101,429	2,866,339	5,703,827	71.4	2,287,723	838,638	1,013,221	774,348
	3 mos.	1,789	14,964,962	4,509,922	21,304,284	3,559,521	3,995,452	295,394	8,317,151	16,909,334	79.4	4,394,950	1,803,323	1,538,041	1,817,654
Burlington, Rock Island	March	228	155,134	72,381	244,204	23,717	17,801	3,277	76,812	137,110	56.1	107,094	3,556	56,534	47,218
	3 mos.	228	430,320	203,698	683,276	85,952	59,853	11,108	241,784	443,517	64.9	239,759	22,030	107,313	158,003
Cambria & Indiana	March	35	161,206	.....	161,307	11,137	45,530	596	19,962	83,568	51.81	77,739	113,379	50,434	54,650
	3 mos.	35	422,388	.....	422,735	27,472	136,120	1,907	57,190	243,323	57.56	179,412	290,987	149,529	165,150
Canadian Pacific Lines in Maine	March	234	554,365	63,618	646,601	72,737	85,698	6,708	227,720	402,845	62.3	243,756	22,983	128,791	256,519
	3 mos.	234	1,501,101	243,141	1,828,474	238,867	240,345	20,205	621,487	1,151,691	63.0	676,783	67,767	350,897	641,652
Canadian Pacific Lines in Vermont	March	90	95,015	15,625	122,954	27,612	35,352	2,437	123,655	193,792	157.6	—70,838	11,750	—127,784	—98,454
	3 mos.	90	221,126	55,828	314,175	99,958	100,839	7,404	334,888	556,958	177.3	—242,783	32,436	—386,748	—300,753
Central of Georgia	March	1,815	2,567,638	630,421	3,575,814	476,670	633,612	70,332	1,387,409	2,715,380	75.9	860,434	262,095	502,694	315,596
	3 mos.	1,815	7,112,654	2,027,613	10,164,870	1,344,251	1,802,531	215,418	3,928,196	7,721,699	76.0	2,443,171	776,972	1,421,434	1,375,472
Central of New Jersey	March	654	4,642,315	575,019	5,611,169	491,922	904,249	63,713	2,153,021	3,794,030	67.6	1,817,139	766,877	845,279	437,042
	3 mos.	654	12,056,250	1,724,997	14,773,902	1,460,141	2,720,555	178,535	6,222,027	11,113,565	75.2	3,660,337	1,634,947	1,434,477	868,712
Central Vermont	March	422	623,885	87,000	772,389	110,774	122,253	10,019	357,620	631,817	81.8	140,572	—34,448	106,259	35,140
	3 mos.	422	1,728,103	236,000	2,114,022	314,684	371,593	29,265	1,042,964	1,855,372	87.8	258,650	56,964	42,397	218,265
Chesapeake & Ohio	March	3,075	16,028,007	1,588,016	18,182,043	2,284,151	3,857,396	259,983	5,045,228	11,998,785	66.0	6,183,258	3,951,620	2,947,161	2,819,542
	3 mos.	3,076	45,983,795	4,424,526	51,963,622	6,573,878	11,385,607	783,583	14,788,423	35,132,296	67.6	16,831,326	10,513,965	8,167,365	8,357,372
Chicago & Eastern Illinois	March	912	1,955,364	541,372	2,752,017	304,783	438,738	70,386	930,948	1,853,478	67.3	898,539	401,500	341,717	354,928
	3 mos.	912	5,383,500	1,601,029	7,701,901	935,169	1,329,774	212,262	2,808,224	5,607,133	72.8	2,094,768	815,500	757,157	906,246
Chicago & Illinois Midland	March	131	492,406	245	520,415	64,577	89,984	21,906	138,859	344,506	66.2	175,909	112,942	75,087	79,059
	3 mos.	131	1,466,360	2,871	1,543,341	183,506	273,905	71,226	426,192	1,038,414	67.3	504,927	316,941	213,997	231,094
Chicago & North Western	March	8,072	9,353,505	2,821,356	13,820,374	1,936,875	2,649,925	225,366	4,932,649	10,262,456	74.3	3,557,918	1,787,630	1,834,797	1,940,710
	3 mos.	8,072	26,608,911	8,396,788	39,666,742	5,546,640	7,933,643	664,501	14,454,341	30,132,923	76.0	9,533,819	4,794,710	4,797,388	6,022,900
Chicago, Burlington & Quincy	March	8,986	16,715,221	2,705,014	21,218,254	2,513,764	3,055,080	333,685	5,154,707	11,612,054	54.7	9,606,200	6,713,738	2,668,474	2,110,815
	3 mos.	8,987	47,826,182	8,904,037	61,971,826	6,833,373	8,992,911	854,978	15,069,142	33,374,698	53.9	28,597,128	18,697,733	9,002,474	7,097,723
Chicago Great Western	March	1,500	2,248,459	207,941	2,649,931	393,818	343,965	65,084	946,606	1,825,084	68.9	824,847	406,382	253,278	278,089
	3 mos.	1,500	6,317,923	594,427	7,486,630	1,129,577	996,000	197,955	2,849,302	5,394,344	72.1	2,092,286	907,620	717,475	828,065
Chicago, Indianapolis & Louisville	March	541	1,023,768	62,075	1,164,449	108,591	199,909	35,455	357,140	740,774	63.6	423,675	124,741	233,510	316,325
	3 mos.	541	2,963,403	247,768	3,438,306	316,531	571,606	103,606	1,086,878	2,196,939	63.9	1,241,367	353,706	703,891	770,955

(Table continued on next left-hand page)

May
W
Sides

How to Get Up-to-Date on 8½" Air Compressors

Side View Showing Clearance



This view shows air cylinders with mounting pads for F-2 lubricator as now supplied for replacements. Conversion can be made by applying the lubricator and new top head.

The advantage of dependable, metered lubrication and the all-around improvement in compressor performance that stems from it is not limited to new compressors. The F-2 lubricator as well as the integral-mounted governor can be had for compressors in service by replacing the top head and the air cylinders. As shown by the clearance diagram above, these parts can be added to existing compressors and stay within existing clearances. To facilitate conversion all air cylinders are now made with the mounting pads for the F-2 lubricator.

Westinghouse Air Brake Company

Wilmerding, Pa.

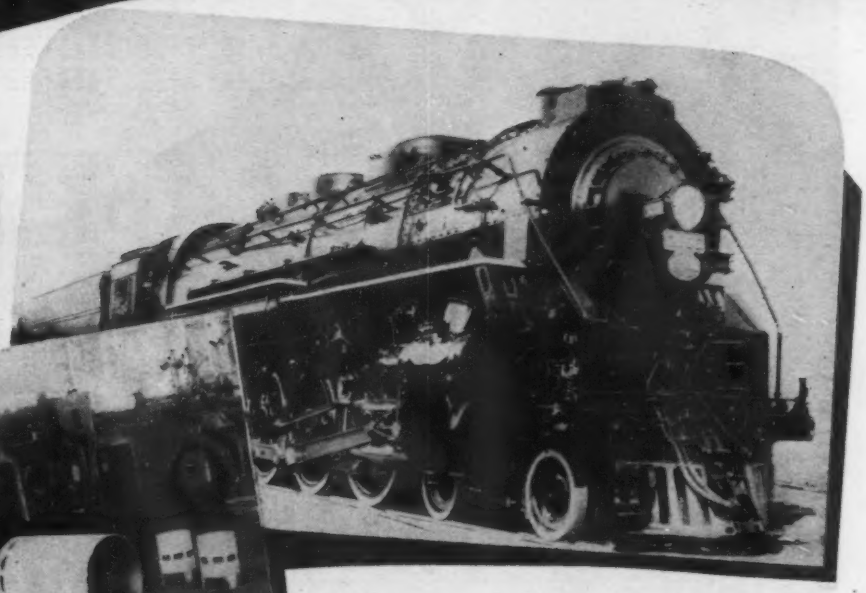
REVENUES AND EXPENSES OF RAILWAYS

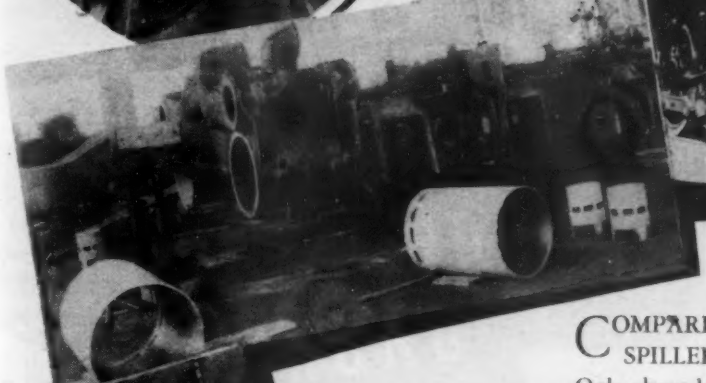
MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Chicago, Milwaukee, St. Paul & Pacific	March	10,722	$14,504,370	$2,392,397	$18,733,633	$2,963,422	$3,300,950	$288,138	$6,417,542	$13,667,332	73.0	$5,066,301	$2,575,000	$2,493,654	$2,381,440
	3 mos.	10,722	43,455,195	7,038,747	55,594,422	7,776,431	9,492,781	843,118	19,240,275	39,425,578	70.9	16,168,844	8,326,000	7,524,705	7,616,924
Chicago, Rock Island & Pacific	March	7,749	12,708,837	3,256,198	17,270,942	2,188,403	2,376,924	349,471	4,473,933	10,256,637	59.4	7,014,305	3,542,305	3,017,792	2,801,242
	3 mos.	7,749	35,560,614	9,599,571	48,742,022	5,806,891	6,823,960	1,044,747	13,985,422	29,454,459	60.4	19,287,563	10,593,774	7,211,630	7,358,916
Chicago, St. Paul, Minneapolis & Omaha	March	1,617	1,846,122	340,480	2,386,144	301,631	350,632	41,792	948,550	1,724,775	72.3	661,369	259,861	362,112	235,015
	3 mos.	1,617	5,077,851	999,546	6,632,009	897,119	994,803	123,279	2,821,985	5,074,595	76.5	1,557,414	573,253	824,582	847,990
Clinchfield	March	302	1,243,010	10,230	1,262,423	84,659	198,233	23,093	292,973	619,337	49.1	643,086	133,572	522,578	514,994
	3 mos.	302	3,698,645	29,564	3,753,581	249,486	580,764	68,078	852,250	1,812,084	48.3	1,941,497	398,021	1,592,234	1,657,555
Colorado & Southern	March	748	989,287	319,548	1,410,759	143,404	197,253	19,453	418,368	833,903	59.1	576,856	235,237	309,677	285,416
	3 mos.	748	2,641,826	831,064	3,776,988	502,111	587,445	53,158	1,197,684	2,491,624	66.0	1,285,364	494,260	632,335	791,517
Fort Worth & Denver City	March	804	744,576	411,916	1,262,328	309,480	217,429	29,671	340,280	956,828	75.8	305,500	131,606	140,833	171,947
	3 mos.	804	2,162,615	1,186,453	3,668,509	938,806	581,687	81,078	985,985	2,765,334	75.4	903,175	396,026	422,969	717,723
Colorado & Wyoming	March	42	84,017	.....	135,217	11,284	22,540	1,032	53,421	92,523	68.4	42,694	23,591	21,906	77,840
	3 mos.	42	249,167	.....	407,823	32,810	60,776	2,413	161,287	270,460	66.3	137,363	72,155	67,554	121,633
Columbus & Greenville	March	168	141,848	8,904	160,307	30,989	19,947	5,365	48,635	119,234	74.4	41,073	23,608	19,300	8,749
	3 mos.	168	419,469	25,352	471,121	95,444	57,630	13,767	144,838	354,810	75.3	116,311	61,323	57,910	35,242
Delaware & Hudson	March	846	4,291,641	207,490	4,612,131	496,790	1,122,958	52,385	1,599,350	3,385,911	73.4	1,226,220	546,967	611,188	697,911
	3 mos.	846	11,244,013	562,726	12,106,483	1,433,359	3,260,345	144,552	4,562,972	9,755,524	80.6	2,350,959	1,099,265	1,159,574	2,644,236
Delaware, Lackawanna & Western	March	973	5,644,342	857,193	7,109,769	712,866	1,126,902	116,408	2,909,195	5,050,559	71.0	2,059,210	526,000	1,362,928	822,312
	3 mos.	973	13,892,930	2,557,543	18,151,076	2,164,291	3,258,700	340,030	8,580,410	14,903,939	82.1	3,247,137	1,564,000	1,209,605	1,993,717
Denver & Rio Grande Western	March	2,386	5,345,232	682,186	6,292,978	749,598	1,158,015	100,144	1,782,065	3,982,224	63.3	2,310,754	842,740	1,398,227	1,092,438
	3 mos.	2,386	14,415,390	2,025,359	17,149,742	1,988,850	3,428,856	295,919	5,170,520	11,452,580	66.8	5,697,162	2,011,784	3,402,419	3,085,816
Denver & Salt Lake	March	232	234,308	10,125	254,138	35,892	58,501	3,518	86,899	196,755	77.4	57,383	29,614	81,465	78,048
	3 mos.	232	708,373	28,011	764,633	117,341	164,197	10,275	263,526	591,689	77.4	172,944	89,652	245,520	240,035
Detroit & Mackinac	March	230	72,047	9,770	90,378	22,896	18,145	883	32,820	78,006	86.3	12,372	4,420	3,637	6,486
	3 mos.	230	180,498	31,351	235,757	49,499	51,990	2,623	95,795	211,207	89.6	24,550	13,243	2,264	2,576
Detroit & Toledo Shore Line	March	50	455,962	.....	457,551	36,640	27,611	10,494	112,880	196,384	42.9	261,167	118,082	65,600	66,723
	3 mos.	50	1,262,969	.....	1,268,096	96,177	81,976	30,898	324,997	560,936	44.2	707,160	313,569	189,520	200,202
Detroit, Toledo & Ironton	March	464	924,061	1,539	956,259	108,436	122,526	15,633	230,445	503,798	52.7	452,461	208,741	234,845	190,060
	3 mos.	464	2,783,449	4,049	2,867,971	288,339	367,842	45,817	700,672	1,482,701	51.7	1,385,270	620,271	744,866	684,328
Duluth, Missabe & Iron Range	March	546	284,085	6,429	334,098	470,928	553,428	4,873	294,836	1,365,655	408.8	—1,031,557	72,999	—1,083,626	—1,111,423
	3 mos.	546	567,660	17,113	683,226	1,089,046	1,652,014	14,681	831,510	3,717,895	544.2	—3,034,669	197,170	—3,170,062	—3,141,964
Duluth, Winnipeg & Pacific	March	175	218,000	2,000	225,100	48,020	31,254	2,463	98,268	183,909	81.7	41,191	18,046	—6,971	26,134
	3 mos.	175	700,000	6,000	721,200	126,919	94,629	7,243	315,737	556,844	77.2	164,356	56,435	9,003	94,254
Elgin, Joliet & Eastern	March	392	3,042,427	85	3,445,585	266,792	781,611	17,572	1,059,685	2,193,042	63.6	1,252,543	523,575	576,060	287,675
	3 mos.	392	8,450,921	216	9,592,507	724,774	2,306,161	51,854	3,188,363	6,469,429	67.4	3,123,078	1,388,805	1,387,154	843,468
Erie	March	2,243	11,870,652	756,535	13,471,631	1,102,117	2,302,536	246,193	5,303,323	9,422,121	69.9	4,049,510	1,347,105	1,882,947	1,698,140
	3 mos.	2,243	31,724,484	2,657,417	36,673,364	3,438,290	6,801,169	713,273	15,541,311	27,857,201	76.0	8,816,163	3,142,098	3,601,472	4,367,852
Florida East Coast	March	682	1,947,440	1,289,942	3,485,288	428,541	328,728	57,128	938,017	1,879,633	53.9	1,605,655	1,087,632	396,598	455,521
	3 mos.	682	4,947,973	3,874,487	9,576,582	1,043,609	966,807	166,698	2,629,136	5,202,003	54.3	4,374,579	2,130,871	1,906,420	2,513,328
Georgia Railroad	March	328	640,482	137,236	831,598	112,924	143,495	22,674	319,106	619,918	74.5	211,680	33,851	180,485	332,414
	3 mos.	328	1,918,292	421,173	2,476,083	326,544	404,166	67,155	970,631	1,834,853	74.1	641,230	99,020	525,290	766,016
Georgia & Florida	March	408	196,310	5,171	207,253	53,672	25,297	10,695	73,314	170,515	82.3	36,738	11,161	15,785	17,391
	3 mos.	408	562,422	15,674	592,472	151,477	78,974	32,399	204,865	490,540	82.8	101,932	32,844	36,811	69,631
Grand Trunk Western	March	1,026	2,880,000	344,000	3,432,000	493,056	538,562	38,317	1,279,549	2,462,696	71.8	969,304	316,155	581,703	501,402
	3 mos.	1,026	7,839,000	978,000	9,403,000	1,434,026	1,585,736	112,077	3,665,297	7,128,183	75.8	2,274,817	728,592	1,438,481	1,450,294
Canadian National Lines in New England	March	172	142,000	7,700	179,800	38,675	48,022	2,274	104,980	221,283	123.0	—41,483	21,189	—99,029	—95,039
	3 mos.	172	365,500	26,900	477,300	149,411	104,459	6,799	313,680	652,058	136.6	—174,758	63,567	—334,916	—279,564
Great Northern	March	8,371	12,339,603	1,447,698	14,920,170	2,783,996	3,323,376	233,542	4,498,027	11,327,435	75.9	3,592,735	2,272,255	1,481,096	1,861,788
	3 mos.	8,371	35,003,488	4,204,321	42,375,201	7,436,264	9,766,756	714,133	13,238,902	32,552,294	76.8	9,822,907	6,134,993	4,009,927	4,861,694
Green Bay & Western	March	233	241,213	* 370	249,243	68,025	23,851	8,810	76,710	187,007	75.0	62,236	33,147	20,157	37,083
	3 mos.	233	679,820	1,294	704,093	169,484	66,861	25,638	220,684	519,530	73.7	184,563	97,368	67,242	125,563
Gulf & Ship Island	March	259	249,435	36,294	317,482	45,388	33,865	2,796	103,147	196,278	61.8	121,204	21,076	85,162	109,571
	3 mos.	259	599,774	118,780	802,380	141,007	94,508	8,322	299,335	573,814	71.5	228,566	58,621	126,671	197,487

(Table continued on next left-hand page)

HSGI VITAL PARTS SAVE ALL-WAYS





COMPARISON of costs clearly shows the advantages of HUNT-SPILLER GUN IRON. Take bushing renewals, for instance. Only about half of the total expense of a bushing job is represented by the castings; the rest goes for machining and installing. So because HSGI bushings mean longer spacing between renewals, you save not only on material costs, but also on the item of shop expense.

So runs the experience of HUNT-SPILLER GUN IRON users. Their cost figures *prove* the savings; how else can one explain the steadily increasing use of HSGI for valve and cylinder bushings, packing, and other vital locomotive parts? Most major roads now rely upon this better wear resisting material to increase locomotive service and reduce costs. It will do the same for your road.

HUNT SPILLER GUN IRON HSGI

AIR FURNACE PROCESS

HUNT-SPILLER MFG. CORPORATION

N. C. RAYMOND, *President* — E. J. FULLER, *Vice-Pres. & Gen. Mgr.*

383 Dorchester Ave. ★ South Boston 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York 7, N. Y.

Cylinder Bushings	Crosshead Shoes	Dunbar Sectional Type Packing
Cylinder Packing Rings	Hub Liners	Duplex Sectional Type Packing for Cylinders and Valves
Pistons or Piston Bull Rings	Shoes and Wedges	(Duplex Springs for Above Sectional Packing)
Valve Bushings	Floating Rod Bushings	Cylinder Snap Rings
Valve Packing Rings	Light Weight Valves	Valve Rings, All Shapes
Valve Bull Rings	Cylinder Liners and Pistons for Diesel Service	

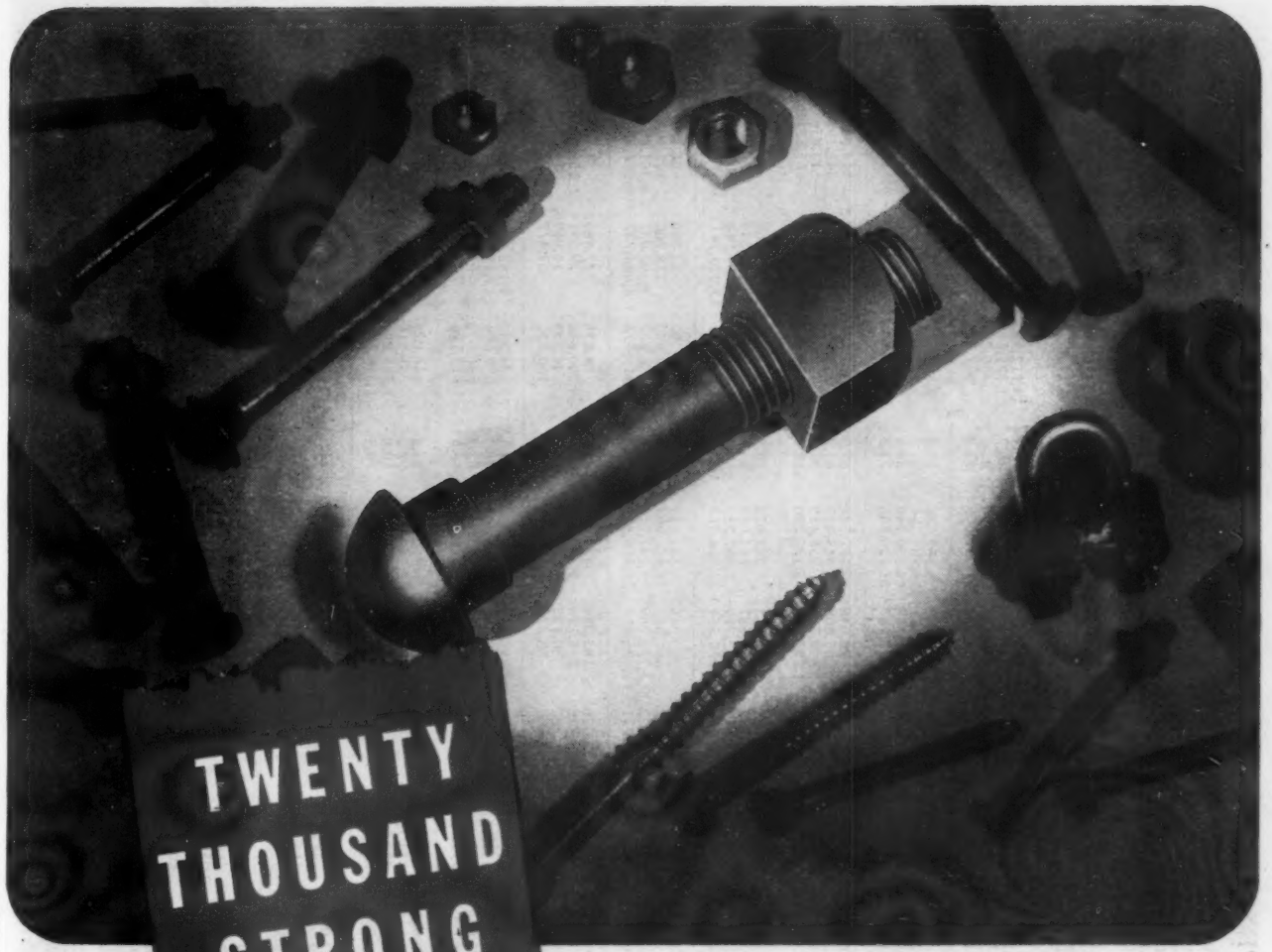
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	1944
Gulf, Mobile & Ohio	March	1,942	$3,023,122	$195,722	$3,320,780	$503,111	$556,736	$87,008	$891,253	$2,168,973	65.3	$1,151,757	$665,210	$376,593	$433,429
	3 mos.	1,945	8,445,376	541,413	9,267,241	1,449,635	1,568,712	258,917	2,517,569	6,177,673	66.7	3,089,568	1,754,589	1,023,855	1,115,557
Illinois Central	March	4,822	15,199,995	2,639,420	19,046,999	2,447,066	3,465,681	218,720	5,478,903	12,303,684	64.6	6,743,315	4,290,216	2,314,583	2,501,029
	3 mos.	4,823	43,148,683	7,670,966	54,180,278	6,884,822	9,841,134	653,186	15,821,865	35,178,777	64.9	19,001,501	12,140,253	6,625,328	6,589,427
Yazoo & Mississippi Valley	March	1,524	3,243,637	376,674	3,802,703	524,508	335,181	38,399	876,147	1,879,831	49.4	1,922,872	1,144,157	716,618	348,327
	3 mos.	1,524	7,179,284	1,046,206	8,718,148	1,553,541	945,876	113,203	2,574,428	5,484,482	62.9	3,233,666	1,845,108	1,180,582	1,320,580
Illinois Central System	March	6,346	18,443,632	3,016,094	22,849,702	2,971,574	3,800,862	257,119	6,355,050	14,183,515	62.1	8,666,187	5,439,578	3,036,114	2,854,269
	3 mos.	6,347	50,327,967	8,717,172	62,898,426	8,438,363	10,787,010	766,389	18,396,293	40,663,259	64.6	22,235,167	14,000,870	7,820,649	7,921,746
Illinois Terminal	March	476	877,294	182,734	1,133,881	101,286	123,984	20,548	319,093	598,803	52.81	535,078	370,693	139,788	120,157
	3 mos.	476	2,302,059	507,085	3,028,107	296,740	351,757	60,319	911,218	1,707,078	56.37	1,321,029	883,744	377,487	358,549
Kansas City Southern	March	890	3,091,866	239,862	3,558,337	399,788	463,409	66,030	912,859	1,974,929	55.5	1,583,408	935,000	465,174	462,075
	3 mos.	890	8,573,607	808,786	10,011,820	1,207,367	1,424,743	195,125	2,612,610	5,819,487	58.1	4,192,333	2,085,000	1,574,983	1,224,446
Kansas, Oklahoma & Gulf	March	328	403,281	3,134	409,232	50,953	29,214	9,706	83,789	185,099	45.2	224,133	104,512	98,622	82,610
	3 mos.	328	1,046,130	6,329	1,062,319	121,452	77,640	29,166	238,010	499,142	47.0	563,177	251,118	249,094	245,185
Lake Superior & Ishpeming	March	156	67,101	135	80,144	24,696	35,931	711	33,482	105,454	131.6	—25,310	23,798	—39,514	—79,687
	3 mos.	156	141,772	395	160,821	77,439	112,076	2,150	93,816	311,804	193.9	—150,983	70,721	—195,379	—249,349
Lehigh & Hudson River	March	96	367,604	5	368,409	31,293	47,125	5,785	104,285	195,399	53.0	173,010	104,191	33,907	27,850
	3 mos.	96	905,459	18	907,553	81,792	133,437	16,784	293,763	546,549	60.2	361,000	184,839	80,096	80,621
Lehigh & New England	March	190	498,541	.....	503,626	45,672	139,051	8,193	155,770	370,719	73.6	132,907	36,690	120,142	96,630
	3 mos.	190	1,315,001	.....	1,325,735	130,935	389,703	24,562	458,568	1,067,128	80.5	258,607	110,742	209,598	311,846
Lehigh Valley	March	1,260	6,628,212	634,766	7,716,956	1,066,153	1,337,860	126,050	3,210,099	5,984,067	77.5	1,732,889	500,902	695,012	892,452
	3 mos.	1,260	17,369,595	1,808,986	20,565,737	3,1[illegible]6,916	4,050,098	365,453	9,432,931	17,685,982	86.0	2,879,755	1,463,677	—4,637	2,415,420
Louisiana & Arkansas	March	834	1,485,275	145,960	1,681,548	347,447	207,140	34,783	384,654	1,020,592	60.7	660,956	403,003	185,168	142,873
	3 mos.	834	4,722,132	440,640	5,322,002	923,163	599,196	104,321	1,153,394	2,940,497	55.3	2,381,505	1,512,269	667,837	527,277
Louisville & Nashville	March	4,756	13,359,751	3,198,267	17,627,293	2,004,678	3,121,324	215,350	5,454,482	11,344,232	64.4	6,283,061	4,713,281	2,060,325	2,079,448
	3 mos.	4,756	40,336,781	9,977,939	53,374,566	5,670,517	9,014,430	628,865	16,422,580	33,363,618	62.5	20,010,948	14,820,665	6,366,536	6,319,776
Maine Central	March	988	1,649,053	246,190	2,006,450	285,560	337,962	14,850	680,707	1,368,471	68.2	637,979	273,773	262,153	224,506
	3 mos.	988	4,317,380	716,908	5,347,183	915,543	971,471	42,442	2,047,199	4,128,074	77.2	1,219,109	501,003	495,295	522,991
Midland Valley	March	334	132,356	31	135,192	21,787	13,210	2,852	44,309	86,924	64.3	48,268	15,302	26,419	14,954
	3 mos.	334	398,797	104	406,879	60,960	41,113	7,834	129,294	253,015	62.2	153,864	58,137	71,779	68,658
Minneapolis & St. Louis	March	1,408	1,297,067	35,815	1,384,083	244,295	203,082	64,585	410,001	983,102	71.0	400,981	215,347	200,340	183,929
	3 mos.	1,408	3,579,147	95,448	3,818,547	664,756	591,358	195,005	1,204,901	2,829,622	74.1	988,925	562,590	470,693	440,973
Minneapolis, St. Paul & Sault Ste. Marie	March	3,224	1,381,300	147,337	1,675,522	355,866	361,751	41,359	735,431	1,567,943	93.6	107,579	130,652	34,047	697,758
	3 mos.	3,224	4,101,950	438,869	4,972,366	968,093	1,192,722	116,822	2,323,331	4,808,448	96.7	163,918	397,091	—16,411	1,507,519
Duluth, South Shore & Atlantic	March	550	305,301	22,817	350,306	58,106	59,927	11,937	138,836	277,142	79.1	73,164	21,421	41,649	77,003
	3 mos.	550	835,200	64,773	959,617	169,410	183,625	33,378	419,500	830,254	86.5	129,363	63,152	52,050	209,873
Spokane International	March	152	180,940	5,578	196,032	42,788	15,917	3,131	44,061	114,094	58.2	81,938	45,322	25,186	9,977
	3 mos.	152	500,650	15,825	549,382	131,948	43,312	9,645	128,389	335,643	61.1	213,739	109,620	71,942	39,328
Mississippi Central	March	158	178,854	2,250	186,384	35,810	19,399	9,408	42,983	114,642	61.5	71,742	29,718	29,816	42,377
	3 mos.	158	491,144	7,555	511,475	98,496	56,582	28,118	123,627	327,335	64.0	184,140	69,228	80,794	94,805
Missouri & Arkansas	March	365	208,866	2,118	218,836	64,592	26,831	8,069	93,128	199,731	91.3	19,105	2,456	—11,600	24,417
	3 mos.	365	665,257	6,936	700,415	185,897	68,193	24,227	266,422	565,367	80.7	135,048	37,682	12,606	57,355
Missouri-Illinois	March	172	304,591	483	306,477	35,235	38,172	4,382	67,364	149,387	48.7	157,090	114,313	41,410	35,603
	3 mos.	172	822,390	1,415	827,415	109,133	112,596	13,700	197,190	451,405	54.6	376,010	261,402	111,058	108,590
Missouri-Kansas-Texas Lines	March	3,253	6,374,384	974,754	7,977,183	1,670,402	853,882	156,578	2,170,688	5,111,201	64.1	2,865,982	1,702,383	755,578	1,054,785
	3 mos.	3,253	17,393,335	2,911,251	22,051,264	4,627,808	2,597,683	445,692	6,282,663	14,654,753	66.5	7,396,511	4,112,144	2,119,742	2,470,722
Missouri Pacific	March	7,082	15,229,835	2,740,780	19,358,491	2,198,173	2,783,620	308,759	5,433,119	11,273,033	58.2	8,085,458	4,670,092	2,802,308	2,787,608
	3 mos.	7,082	43,873,499	8,958,893	56,819,897	5,820,981	8,103,165	909,427	15,860,440	32,336,461	56.9	24,483,436	13,828,295	8,783,362	8,699,272
Gulf Coast Lines	March	1,734	4,077,587	299,898	4,521,125	589,094	363,600	56,753	1,003,347	2,101,591	46.5	2,419,534	.....	203,420	706,310
	3 mos.	1,734	11,303,616	911,462	12,661,831	1,850,445	1,079,640	166,889	2,899,867	6,262,037	49.5	6,399,794	.....	1,850,710	2,045,190
International Great Northern	March	1,110	1,932,494	445,804	2,633,190	467,454	357,848	36,351	825,577	1,785,049	67.8	848,141	341,661	342,091	342,235
	3 mos.	1,110	5,276,896	1,313,711	7,321,719	1,369,651	1,028,941	111,549	2,403,956	5,204,396	71.1	2,117,323	736,850	936,649	929,212
Monongahela	March	170	580,510	2,286	585,582	74,194	50,626	671	151,206	280,654	47.9	304,928	93,253	109,600	139,907
	3 mos.	170	1,489,032	6,918	1,506,278	195,503	132,769	1,941	434,322	776,562	51.6	729,716	277,206	204,170	363,993

(Table continued on next left-hand page)

Other
These
are
either
repu
high
by
Upsc
prod
there
idea
would
Cour
sand



★ The Republic Upson Line has 20,000 types and sizes of Bolts and Nuts to serve you

Counting from one to twenty thousand would take hours—but that would be one way to get a better idea of the full extent of the Republic Upson Line of headed and threaded products. There are sizes and types there to fill *all* your fastening needs.

These Republic Upson products are not ordinary bolts and nuts either. They have a 90-year-old reputation for good service. Their high, uniform quality is controlled by *one* organization from the *processing of the ore to the finished product.*

Republic Upson Quality means *uniform accuracy to size* in the heads, shanks, threads and nuts—*uniform toughness* inside and out. Heads and nuts are sharp-cornered, straight-sided, fit wrenches perfectly, prevent slippage. Threads are strong, clean cut, exact for spacing and depth, and take heavy wrenching.

For better bolt and nut service in the postwar future, standardize on the specification—Republic Upson.

REPUBLIC STEEL CORPORATION
BOLT AND NUT DIVISION • CLEVELAND 13, OHIO
Export Department: Chrysler Bldg., New York 17, N. Y.

REPUBLIC *Upson Quality* BOLTS AND NUTS

Other Republic products include Pipe, Sheets, [illegible] — Carbon, Alloy and Enduro Stainless Steels

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Montour	March	51	$235,757	.....	$237,295	$19,244	$58,822	$1,019	$78,226	$165,679	69.8	$71,616	$52,351	$51,097	$60,879
	3 mos.	51	617,978		623,203	47,659	165,986	3,071	230,454	473,058	75.9	150,145	127,804	121,431	160,802
Nashville, Chattanooga & St. Louis	March	1,071	2,940,384	$497,149	3,711,717	438,639	706,200	85,346	1,138,433	2,496,821	67.3	1,214,896	535,901	653,281	533,123
	3 mos.	1,071	8,097,218	1,484,463	10,328,176	1,426,796	2,035,189	259,047	3,261,606	7,289,793	70.6	3,038,383	1,382,755	1,626,828	1,499,422
New York Central	March	10,749	42,083,281	13,549,662	61,512,376	9,476,229	11,260,455	733,643	23,067,829	46,799,453	76.1	14,712,923	6,387,123	6,198,279	5,627,409
	3 mos.	10,749	110,151,895	38,495,161	164,942,578	25,272,709	32,657,440	2,208,584	66,267,107	133,165,039	80.7	31,777,539	15,112,961	11,129,956	15,437,654
Pittsburgh & Lake Erie	March	229	2,711,933	106,219	2,927,271	332,585	975,898	47,442	974,844	2,446,570	83.6	480,701	624,917	455,736	441,910
	3 mos.	229	7,064,609	318,545	7,694,882	941,146	2,750,061	132,968	2,851,154	7,017,608	91.2	677,274	1,264,006	972,415	1,271,070
New York, Chicago & St. Louis	March	1,687	9,061,072	178,710	9,402,631	1,030,540	1,356,192	170,699	2,730,689	5,509,286	58.6	3,893,345	2,171,359	1,200,848	997,381
	3 mos.	1,687	23,747,416	749,059	24,961,255	2,957,440	3,950,705	486,381	7,794,355	15,809,394	63.3	9,151,861	4,154,935	3,620,747	2,825,714
New York, New Haven & Hartford	March	1,838	8,779,530	6,089,505	16,168,578	1,608,536	2,453,150	144,264	5,691,518	10,656,748	65.9	5,511,830	2,070,000	2,068,686	2,160,599
	3 mos.	1,838	22,564,047	17,289,694	43,365,116	5,031,626	7,029,229	453,245	16,372,783	31,136,546	71.8	12,228,570	4,560,000	4,111,983	5,559,290
New York Connecting	March	21	228,630	.....	261,670	56,881	21,056	.....	98,048	177,786	67.9	83,884	96,199	114,064	121,468
	3 mos.	21	586,325	.....	662,472	152,297	55,020	.....	205,868	418,410	63.2	244,062	294,239	341,198	443,075
New York, Ontario & Western	March	548	670,927	6,429	756,338	95,066	149,286	22,648	442,707	738,459	97.6	17,879	42,434	—113,836	—34,308
	3 mos.	548	1,643,069	12,777	1,850,661	292,121	447,924	67,543	1,297,397	2,190,280	118.4	—339,619	127,377	—661,571	—94,503
New York, Susquehanna & Western	March	120	415,532	39,934	471,843	35,323	35,361	4,921	176,161	268,070	56.8	203,773	58,568	75,732	82,029
	3 mos.	120	1,076,197	117,201	1,230,999	103,249	105,219	14,737	510,587	781,083	63.5	449,916	151,344	127,802	268,317
Norfolk & Western	March	2,154	11,836,798	1,127,786	13,365,090	1,476,975	2,620,202	178,817	3,282,379	7,897,752	59.1	5,467,338	4,089,744	2,209,124	2,320,502
	3 mos.	2,154	35,821,284	3,327,721	40,402,938	4,364,392	7,776,450	526,076	9,570,384	23,216,313	57.5	17,186,625	13,073,741	6,376,316	6,238,125
Norfolk Southern	March	727	653,270	25,190	701,608	164,732	82,748	31,258	232,345	541,011	77.1	160,597	63,380	66,135	64,150
	3 mos.	727	1,805,658	69,058	1,936,964	457,259	243,019	91,717	689,059	1,566,994	80.9	369,970	138,200	142,597	141,656
Northern Pacific	March	6,867	9,101,117	1,439,722	11,534,165	2,086,211	2,653,745	201,122	3,776,269	9,297,278	80.6	2,236,887	1,392,037	1,361,894	1,802,429
	3 mos.	6,867	27,253,228	4,549,665	34,693,368	5,390,604	7,791,028	569,711	11,375,817	26,776,575	77.2	7,916,793	4,684,737	4,602,635	5,078,126
Northwestern Pacific	March	331	496,042	21,185	542,860	195,499	63,505	3,076	183,384	454,304	83.7	88,556	27,485	31,188	2,027
	3 mos.	331	1,444,292	55,965	1,566,969	524,279	178,259	8,125	525,753	1,260,321	80.4	306,648	79,391	158,093	35,873
Oklahoma City-Ada-Atoka	March	132	112,997	910	115,268	29,666	5,539	1,282	30,135	70,914	61.5	44,354	16,069	14,186	18,866
	3 mos.	132	343,732	913	348,245	63,916	19,124	3,583	88,374	187,714	53.9	160,531	63,477	55,408	74,403
Pennsylvania	March	10,115	61,725,858	19,908,704	88,151,656	9,207,215	16,312,681	1,039,742	35,488,167	65,316,424	74.1	22,835,232	9,785,791	12,148,584	9,359,852
	3 mos.	10,115	160,032,129	60,540,503	239,173,029	27,587,664	44,835,117	3,028,960	103,846,338	188,343,331	78.7	50,829,698	26,855,638	21,544,657	26,326,810
Long Island	March	376	1,155,631	2,042,659	3,400,074	495,060	547,288	11,896	1,697,890	2,813,442	82.7	586,632	301,639	32,347	—124,782
	3 mos.	376	3,285,222	5,990,290	9,837,689	1,455,100	1,550,017	32,354	4,992,362	8,224,513	83.6	1,613,176	772,985	103,818	—297,786
Pennsylvania-Reading Seashore Lines	March	392	554,292	318,420	902,821	149,530	102,728	6,979	481,094	762,797	84.5	140,024	90,976	—67,666	—172,070
	3 mos.	392	1,407,111	837,150	2,328,719	434,546	333,737	21,607	1,404,108	2,263,601	97.2	65,118	257,590	—493,900	—560,660
Pere Marquette	March	1,949	4,810,941	261,782	5,260,653	776,050	873,931	81,942	1,823,179	3,725,631	70.8	1,535,022	530,564	876,999	436,292
	3 mos.	1,949	12,781,294	782,106	14,064,959	2,243,905	2,582,075	241,026	5,173,783	10,745,773	76.4	3,319,186	1,215,447	1,947,165	1,174,520
Pittsburg & Shawmut	March	97	120,599	.....	121,244	23,007	24,894	2,075	35,126	90,797	74.9	30,447	3,972	25,003	16,228
	3 mos.	97	346,780	.....	348,955	58,992	70,957	5,527	110,535	262,993	75.4	85,962	23,902	64,968	97,109
Pittsburgh & West Virginia	March	136	734,053	.....	753,347	100,225	105,846	27,101	172,678	432,767	57.4	320,580	96,734	240,650	156,236
	3 mos.	136	1,998,770	.....	2,054,644	262,149	321,996	73,920	523,545	1,268,788	61.8	785,856	222,082	635,322	441,544
Pittsburg, Shawmut & Northern	March	190	106,227	.....	107,510	24,196	16,254	1,099	45,225	92,323	85.9	15,187	6,619	1,445	3,952
	3 mos.	190	300,962	.....	303,914	63,309	60,671	3,209	142,834	287,147	94.5	16,767	20,057	—24,669	2,662
Reading	March	1,367	9,101,954	952,376	10,530,974	1,163,147	2,055,508	90,573	3,598,277	7,131,300	67.7	3,399,674	2,178,160	1,176,346	1,642,615
	3 mos.	1,367	24,750,165	2,711,800	28,745,555	3,370,913	5,908,647	261,863	10,325,687	20,500,291	71.3	8,245,264	4,878,165	3,260,862	3,837,076
Richmond, Fredericksburg & Potomac	March	118	1,662,390	1,188,917	3,123,235	267,578	313,375	15,661	883,254	1,583,101	50.7	1,540,134	1,183,297	187,919	283,049
	3 mos.	118	4,711,130	3,526,410	8,984,221	730,647	995,838	45,051	2,574,307	4,674,764	52.0	4,309,457	3,268,274	569,821	868,103
Rutland	March	407	321,986	53,788	450,344	61,343	90,061	13,955	234,427	415,684	92.3	34,660	27,444	5,365	2,679
	3 mos.	407	748,189	172,271	1,128,739	199,444	273,845	38,298	689,716	1,247,575	110.5	—118,836	83,453	—206,436	—68,570
St. Louis-San Francisco	March	4,645	7,526,467	1,690,183	10,041,003	1,263,517	1,695,191	172,624	3,121,747	6,608,111	65.8	3,432,892	1,885,960	1,615,114	1,194,499
	3 mos.	4,646	21,012,859	5,201,887	28,516,674	3,616,747	4,969,450	515,120	9,057,121	19,202,511	67.3	9,314,163	5,053,817	4,459,044	4,011,055
St. Louis, San Francisco & Texas	March	160	264,342	36,842	311,478	34,720	30,963	11,564	114,131	198,997	63.9	112,481	60,470	24,423	45,618
	3 mos.	160	770,668	113,344	911,508	99,355	93,975	33,621	320,895	570,600	62.6	340,908	181,773	81,387	131,295

REVENUES AND EXPENSES OF RAILWAYS

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income: 1945	1944
St. Louis, San Francisco & Texas	March	160	264,342	36,842	311,478	34,720	30,963	11,564	114,131	198,997	63.9	112,481	30,476	24,423	45,018
	3 mos.	160	770,668	113,344	911,508	99,355	93,975	33,621	320,895	570,600	62.6	340,908	181,773	81,387	131,295

REVENUES AND EXPENSES OF RAILWAYS

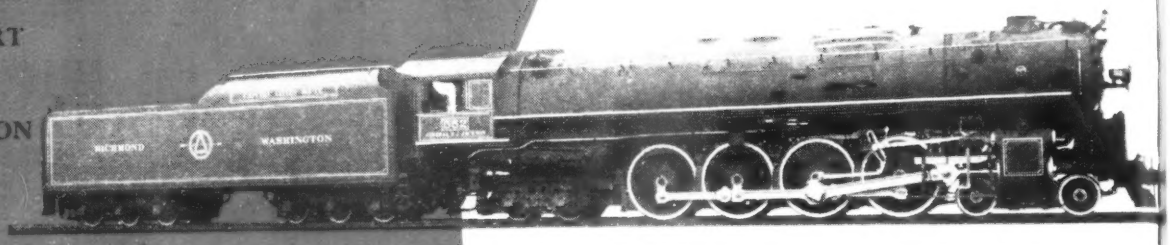
MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income: 1945	1944
St. Louis Southwestern Lines	March	1,607	$6,344,877	$280,779	$6,820,446	$647,671	$663,609	$106,536	$1,429,222	$2,991,738	43.9	$3,828,708	$2,503,297	$1,057,315	$870,976
	3 mos.	1,607	17,563,446	897,200	18,973,463	1,744,093	1,876,050	314,534	4,088,767	8,439,283	44.5	10,534,180	6,761,186	2,906,995	2,255,527
Seaboard Air Line	March	4,173	8,786,702	3,363,190	12,982,612	1,536,935	2,222,537	253,325	3,844,424	8,354,236	64.3	4,628,376	2,275,000	1,830,208	2,123,000
	3 mos.	4,173	23,866,340	10,262,358	36,500,605	4,470,934	5,773,755	730,359	10,792,832	23,241,957	63.7	13,258,648	6,500,000	5,300,695	5,972,404
Southern Railway	March	6,505	17,128,001	5,310,061	23,879,621	2,674,863	3,606,614	269,845	6,541,592	13,808,770	57.8	10,070,851	6,754,417	2,979,996	2,875,207
	3 mos.	6,505	48,947,002	15,924,976	68,969,092	7,865,628	10,498,323	785,676	19,263,825	40,449,627	58.6	28,519,465	18,926,798	8,477,785	8,363,309
Alabama Great Southern	March	315	1,357,922	378,923	1,872,090	205,987	319,876	30,768	545,903	1,164,252	62.2	707,838	506,274	145,280	140,990
	3 mos.	315	3,997,948	1,432,047	5,841,804	593,908	942,497	84,807	1,635,667	3,467,766	59.4	2,374,038	1,692,238	525,448	516,781
Cincinnati, New Orleans & Texas Pacific	March	337	2,131,767	576,396	2,894,048	330,788	643,761	43,646	766,594	1,877,180	64.9	1,016,868	700,186	412,321	489,695
	3 mos.	337	6,537,597	1,775,215	8,853,263	965,009	1,985,216	131,548	2,303,382	5,676,262	64.1	3,177,001	2,215,379	1,190,631	1,290,309
Georgia Southern & Florida	March	397	311,320	241,426	611,868	81,118	80,032	2,514	201,185	383,849	62.7	228,019	133,543	58,610	60,309
	3 mos.	397	872,583	736,132	1,779,509	218,681	228,264	7,611	533,907	1,043,166	58.6	736,343	436,110	195,278	169,166
New Orleans & Northeastern	March	204	860,229	203,842	1,120,234	129,936	125,776	14,494	283,813	594,484	53.1	525,750	345,536	98,203	102,569
	3 mos.	204	2,556,047	690,664	3,426,173	381,903	369,048	41,136	786,758	1,719,198	50.2	1,706,975	1,113,496	373,194	259,149
Southern Pacific	March	8,247	30,479,221	8,305,513	42,356,387	5,674,498	7,820,313	691,746	12,977,612	29,352,475	69.3	13,003,912	8,098,062	3,435,827	3,652,449
	3 mos.	8,247	84,831,495	24,143,900	119,390,175	17,027,559	23,007,962	1,976,497	38,045,748	86,394,238	72.4	32,995,937	19,761,416	9,089,811	9,951,778
Texas & New Orleans	March	4,327	8,727,369	1,956,342	11,338,256	1,568,266	1,410,397	159,960	2,947,030	6,460,734	57.0	4,877,522	3,109,820	1,233,493	1,411,614
	3 mos.	4,331	23,941,468	5,915,889	31,703,894	4,392,331	4,302,968	477,744	8,546,189	18,847,090	59.4	12,856,804	7,933,514	3,379,745	4,390,488
Spokane, Portland & Seattle	March	944	2,037,647	158,195	2,309,233	626,192	233,712	15,448	657,067	1,599,746	69.3	709,487	284,417	251,513	115,238
	3 mos.	944	5,592,562	485,316	6,428,025	1,607,689	665,354	43,867	1,903,354	4,420,883	68.8	2,007,142	705,102	793,702	141,943
Tennessee Central	March	286	343,040	27,018	390,380	75,861	65,954	7,105	128,433	292,232	74.9	98,148	31,226	45,984	52,683
	3 mos.	286	900,908	125,212	1,080,196	194,904	188,894	20,781	374,292	824,072	76.3	256,124	85,385	118,204	158,318
Texas & Pacific	March	1,884	4,629,749	1,477,209	6,649,330	1,025,954	889,877	114,121	1,623,778	3,923,075	59.0	2,726,255	1,943,887	573,294	557,838
	3 mos.	1,884	13,871,827	4,506,947	19,995,569	2,619,787	2,688,089	331,916	4,789,538	11,229,112	56.2	8,766,457	6,141,256	1,981,927	1,670,680
Texas Mexican	March	162	147,612	744	165,938	44,097	14,895	4,096	43,388	115,280	69.5	50,658	18,455	26,339	77,338
	3 mos.	162	398,006	2,609	451,412	199,723	50,716	12,643	125,078	416,341	92.2	35,071	57,450	—42,231	169,419
Toledo, Peoria & Western	March	239	405,525	8	409,159	49,124	28,942	25,881	102,498	221,300	54.1	187,859	19,654	141,946	199,158
	3 mos.	239	1,226,618	11	1,236,182	121,620	74,986	74,403	280,204	593,333	48.0	642,849	58,755	516,633	638,305
Union Pacific System	March	9,781	32,220,726	6,988,345	42,607,719	5,348,282	8,095,092	595,480	11,595,519	27,397,633	64.3	15,210,086	10,965,062	3,578,542	3,420,598
	3 mos.	9,781	89,026,305	20,332,386	119,109,864	14,305,838	23,483,060	1,798,936	33,970,653	79,087,921	66.4	40,021,943	28,843,326	8,848,665	8,978,936
Utah	March	111	117,080	.....	117,118	14,660	42,151	536	34,036	95,836	81.8	21,282	14,884	14,241	13,109
	3 mos.	111	341,832	.....	341,964	43,604	110,320	1,737	100,701	269,619	78.8	72,345	46,092	44,440	41,711
Virginian	March	657	2,666,131	8,271	2,770,738	264,629	677,277	26,557	608,684	1,634,082	59.0	1,136,656	675,000	613,876	633,649
	3 mos.	657	7,517,861	23,736	7,812,632	796,430	2,018,243	79,949	1,712,003	4,778,837	61.2	3,033,795	1,656,310	1,766,386	1,868,269
Wabash	March	2,393	7,407,711	822,849	8,686,772	976,452	1,046,406	180,439	2,663,190	5,131,091	59.1	3,555,681	2,208,610	996,756	896,433
	3 mos.	2,393	20,242,179	2,530,617	24,109,798	2,700,757	3,086,975	537,320	7,747,939	14,768,541	61.3	9,341,257	5,714,985	2,561,002	2,405,069
Ann Arbor	March	294	491,235	8,762	508,522	59,845	91,039	17,260	206,519	388,875	76.5	119,647	56,779	60,168	52,425
	3 mos.	294	1,399,046	24,171	1,447,624	169,323	267,387	50,271	632,853	1,154,696	79.8	292,928	144,894	143,323	168,666
Western Maryland	March	840	3,398,613	28,839	3,502,877	455,106	617,747	47,356	884,003	2,102,859	60.0	1,400,018	833,000	597,426	586,184
	3 mos.	840	9,495,303	87,025	9,850,032	1,175,956	1,878,482	139,771	2,524,361	6,010,158	61.0	3,839,874	2,198,000	1,773,808	2,122,042
Western Pacific	March	1,195	4,268,473	522,384	4,927,177	657,411	666,626	92,568	1,385,652	2,952,366	59.9	1,974,811	1,223,413	574,200	525,953
	3 mos.	1,195	12,380,839	1,543,033	14,319,715	1,786,272	2,004,109	271,210	3,900,648	8,432,539	58.9	5,887,176	3,635,457	1,711,093	1,320,516
Wheeling & Lake Erie	March	507	2,552,347	1	2,622,680	230,179	420,061	44,823	699,594	1,445,457	55.1	1,177,223	1,008,787	341,158	257,431
	3 mos.	507	6,848,431	21	7,036,509	588,021	1,185,297	129,847	1,989,831	4,045,564	57.5	2,990,945	2,632,120	919,297	750,404
Wisconsin Central	March	1,130	1,514,701	71,650	1,724,159	213,416	296,334	43,029	753,788	1,367,856	79.3	356,303	142,351	178,973	344,788
	3 mos.	1,130	4,178,843	196,438	4,776,788	595,386	883,448	120,968	2,118,381	3,890,036	81.4	886,752	367,889	412,009	619,569

10 More

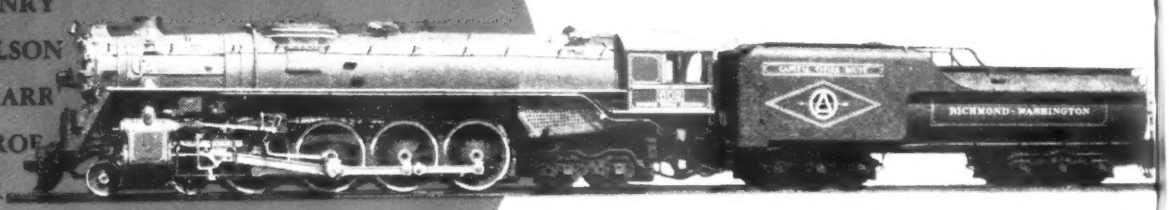
1937
Famous Generals

T. J. JACKSON
ROBERT E. LEE
J. E. B. STUART
A. P. HILL
J. E. JOHNSTON



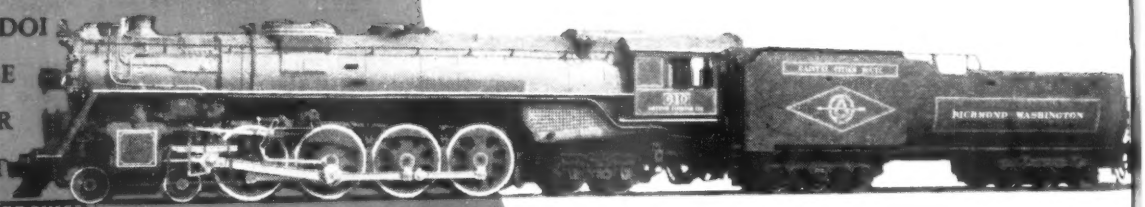
1938
Famous Governors

THOMAS JEFFERSON
PATRICK HENRY
THOMAS NELSON
BENJAMIN HARR
JAMES MONROE
JOHN TYLER



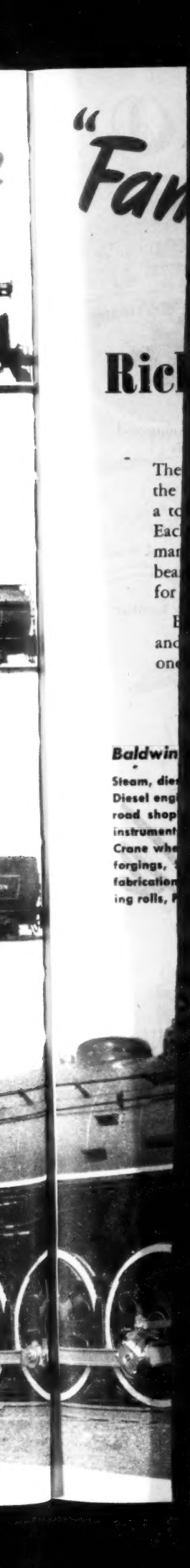
1942
Famous Governors

FITZHUGH LEE
EDMUND RANDOI
HENRY A. WISE
JOHN LETCHER
WILLIAM SMIT
CLAUDE A. SWANSON



1945
Famous Southerners

JOHN MARSHALL
GEORGE WASHINGTON
HENRY CLAY
GEORGE MASON
JOHN RANDOLPH
JAMES MADISON
WILLIAM BYRD
GEORGE WYTHE
RICHARD HENRY LEE
CARTER BRAXTON



"Fan

Ric

The
the
a to
Eac
man
bea
for

and
one

Baldwin

**Steam, die
Diesel eng
road shop
instrument
Crane whe
forgings,
fabricatio
ing rolls,**

"Famous Name" Locomotives

FOR THE

Richmond, Fredericksburg & Potomac R.R.

The recent purchase of ten new locomotives gives the Richmond, Fredericksburg & Potomac Railroad a total of 27 of these speedy and powerful 4-8-4's. Each locomotive bears the name of a distinguished man who helped make American history . . . and each bears a name that has helped make railroad history, for all are Baldwins.

Baldwin has served American railroads since 1832, and for over a century has turned out an average of one locomotive every 14 hours. The capacity, the experience, and the intimate knowledge of railroad needs resulting from this long association can help you when you are planning rolling stock for today that can meet the needs of tomorrow.

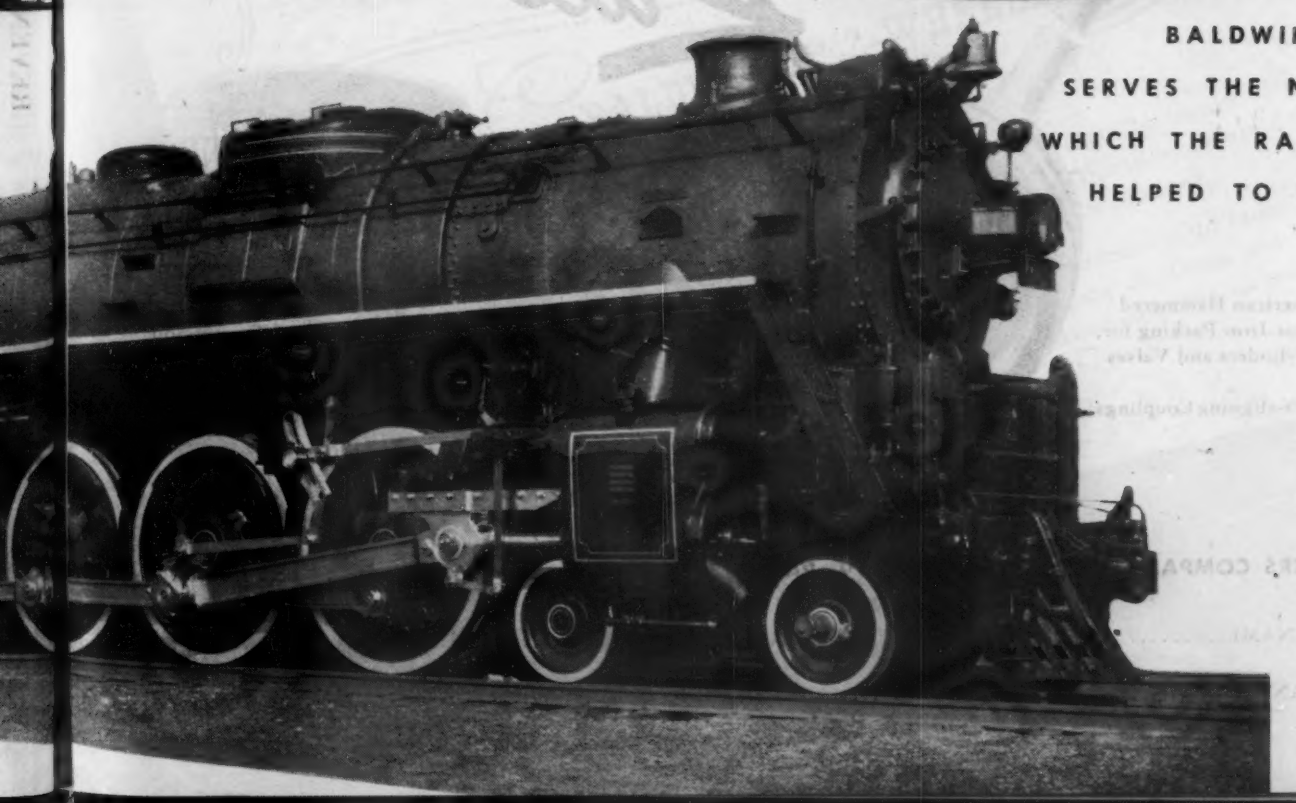
The Baldwin Locomotive Works, Locomotive & Ordnance Division, Philadelphia 42, Pa. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland, St. Louis, San Francisco, Houston, Pittsburgh, Detroit.

BLW THE BALDWIN GROUP

BALDWIN LOCOMOTIVES

Baldwin Products for the Railroads

Steam, diesel-electric and electric locomotives, Diesel engines, Hydraulic presses, Special railroad shop equipment, Testing machines and instruments, Steel tires and rolled steel wheels, Crane wheels, Connecting rods and other steel forgings, Steel castings, Springs, Metal plate fabrication, Boilers, Non-ferrous castings, Bending rolls, Plate planers, Dynamometer cars.



BALDWIN
SERVES THE NATION
WHICH THE RAILROADS
HELPED TO BUILD

Construction and Maintenance Data

Koppers will be glad to provide you with information on any of these products.

Bituminous Paints ☐

"Painting of Creosoted Wood" ☐

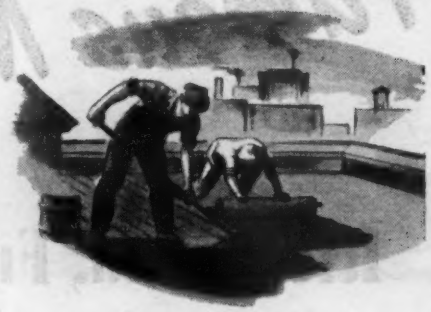
Front End Paint ☐

Other Tar-base Paints ☐

Fire-retardant Structural Lumber ☐

Pressure-creosoted Pre-fabricated Grade Crossings ☐

Pressure-treated Poles and Posts ☐



Coal Tar Pitch Roofing and Reroofing Materials ☐

Coal Tar Pitch Waterproofing and Dampproofing ☐

Pressure-treated Wood ☐

Creosote-Coal Tar Solutions ☐

Pressure-treated Car Lumber ☐

Creosote Oil ☐

Coke ☐

KOPPERS

Insecticides (including stock dips) ☐

Disinfectants ☐

and the ***Railroads***

American Hammered Bronze-Iron Packing for Main Cylinders and Valves ☐

Fast's Self-aligning Couplings ☐

Pressure-treated Piling, Roof Trusses and other Structural Lumber ☐

American Hammered Piston Rings ☐

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

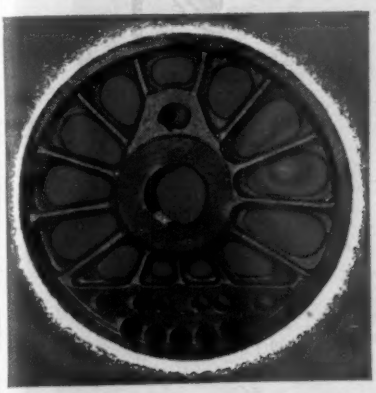
KOPPERS COMPANY, INC., PITTSBURGH 19, PA.

Buy War Bonds . . . and Keep Them!

YOUR NAME.....TITLE.....

COMPANY.....ADDRESS.....

OLD "507" ATE UP THE MILES



With Wooten's boiler and an unorthodox driving arrangement, this Baldwin-built locomotive of 1880 established a two-hour "time table" run between Philadelphia and New York—a record that was soon cancelled by engines equipped with . . .

Union WEB Spoke Driving Wheel Centers

★Cruciform section spokes for great additional strength.

★Reinforced rim support to eliminate flat spots, out of roundness, etc.

★Correct distribution of metal for better balancing of smaller diameter wheels.

★Wheels easily inspected before and after installation.

★Troubles due to shrinkage eliminated by simplicity of design.

★Can be made to any material specification.

NO. 7 OF A SERIES ILLUSTRATING THE EVOLUTION OF AMERICAN LOCOMOTIVES

BALDWIN'S "2-WHEELER" OF 1880

With this 4-2-2-wheel arrangement coupling rods were dispensed with, and to eliminate an excessive load on the drivers a system of equalizing levers was provided. Movable fulcrums controlled by a steam cylinder permitted a greater weight to be applied to the drivers when starting, and when running the excess weight could be transferred to the trailing wheels. This allowed the total weight distribution to be equalized.

"507" was later resold to the Eames Vacuum Brake Company of Boston and was sent to England to demonstrate this brake system.

From "IRON HORSES"... W. W. NORTON & CO., INC.

UNION STEEL CASTINGS

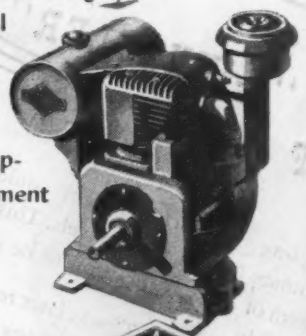
DIVISION OF
BLAW-KNOX CO.
PITTSBURGH, PA.

AIR-COOLED POWER

WITH A *Glorious* PAST
AND A STILL GREATER FUTURE

Through more than 25 years' *continuous* production, Briggs & Stratton has pioneered improved design, engineering advancements, and precision manufacture of *air-cooled* gasoline engines. Today, Briggs & Stratton 4-cycle air-cooled engines are making a vital contribution to the war effort through an ever-increasing variety of standard and special applications. By their dependable performance, they are living up to their long-established reputation as "the world's finest small air-cooled engines."

Everywhere they are setting new records that foretell greater future utility through wider uses of gasoline powered appliances and equipment than ever before!



Air-Cooled Power BRIGGS & STRATTON 4 CYCLE GASOLINE ENGINES

In your plans for the future, you can profit by the long experience which has made this performance record of Briggs & Stratton air-cooled engines possible — whether you manufacture, sell or use gasoline-powered equipment or appliances.

Briggs & Stratton Corp., Milwaukee 1, Wis., U.S.A.

MERCURY would be just an *"also ran"* today...

Mercury, the guide and symbol of speed to the ancient Romans, would have no chance in the modern age of Speed.

Streamlined, fast, modern trains have steadily increased their speed, without sacrificing safety. High speed demands good headlights with dependable wiring.

Okonite has kept pace with modern standards and requirements. Okonite Headlight Wire, which resists vibration and high temperatures, assures continuous reliability in the operation of locomotive headlights, rear tender and cab lights.

You will find hundreds of the most modern locomotives are equipped with Okonite Headlight Wire.

The Okonite Company, Passaic, New Jersey.

OKONITE INSULATED WIRES AND CABLES

VIKING...
THE PUMP SPECIALLY BUILT For GASOLINE, FUEL OILS, LUBE OILS, GREASES, ETC.

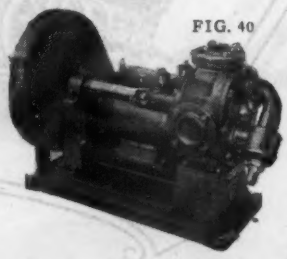


FIG. 40

200-300-450-750 and 1050 GPM capacities — other motor drive units available down to ½ GPM

Far more rotary pumps are built in the Viking design than any other. It is the approved style.

Viking Pumps are specially built in sizes from ½ to 1050 GPM for handling all types of petroleum products, ranging from 100 octane gasoline and butane to lubricating oils and greases.

For complete information about Viking Pumps widely used in the fueling of diesel driven trains, write for Bulletin Series 2500. It's free and will be sent to you by return mail.

VIKING Pump COMPANY CEDAR FALLS IOWA

What a difference COLOR makes!

IN TWENTY-FOUR HOURS you can give faded, shabby freight cars a Carhide color treatment—make them good for thousands of miles of advertising that will build prestige all along the line.

● Carhide goes on easier, dries amazingly fast. Freight cars can be re-finished with attractive new colors in "around the clock" cycles, ready for stenciling, after overnight drying. No more lengthy layups in the paint shop!

● In addition to its remarkable ease of application and quick-drying qualities, Carhide provides a glass-smooth, extra durable surface that stays *live*, tough and elastic—resists cracking and peeling caused by extremes of temperatures—retains its brilliant gloss and readily withstands repeated washings and scrubbings.

● **Pittsburgh Railway Finishes,** available for a wide variety of applications, include Carhide for all types of freight equipment, Stationhide for stations, Ironhide for bridges, and Lavax Synthetic Finishes for passenger cars and locomotives. Call on us for advisory service. Our extensive experience in the field can often save you time and money.

PITTSBURGH PLATE GLASS CO.
Industrial Paint Division, Pittsburgh 22, Pa.

Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Tex.; Los Angeles, Cal.; Portland, Ore. Ditzler Color Division, Detroit, Mich. The Thresher Varnish Co., Dayton, Ohio.

PITTSBURGH PAINTS
PITTSBURGH PLATE GLASS COMPANY, PITTSBURGH, PA.
RAILWAY FINISHES
PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS

GET TOGETHER DEPARTMENT

Educational Services
for
RAILROAD MEN

Our New Service
on
Diesel Locomotive
Operation
is highly recommended
for
Engineers and Firemen

The Railway
Educational Bureau
Omaha 2, Nebraska

GET OUR PRICES FIRST

RAILWAY EQUIPMENT
and ACCESSORIES

We can furnish rails, spikes, bolts, angle bars, cranes and other railway material. Machines, motors, pumps, etc.

Write, wire or phone inquiries

Sonken - Galamba Corp.
Kansas City 18, Kans.

EXCEPTIONAL OFFERINGS IN LOCOMOTIVES

114 ton Americans. Cyls. 23 x 30". Completely rebuilt 1929. 210# pressure. Tractive effort 50,600#. In exceptionally fine condition. Immediate delivery.

181 ton Americans. Cyls. 28 x 32". New 1924. 200# pressure. Tractive effort 67,700#. (plus 11,500# for boosters). Total tractive effort 79,200#. Will rebuild for quick delivery.

189 ton Americans. Cyls. 29 x 32". New 1920. 190# pressure. Tractive effort 71,300#. Will rebuild for quick delivery.

203 tons Limas. Cyls. 27½ x 30". New 1928. Pressure 240#. Tractive effort 66,550 lbs. (plus 12,000# for boosters.) Total tractive effort 78,550#. Completely rebuilt. Immediate delivery.

1—80 ton American 6-wheel Switcher. Separate tender. New December, 1925. Exceptionally fine condition.

WRITE WIRE PHONE

THOMAS F. CAREY CO., Inc.
120 LIBERTY STREET, NEW YORK 6, N. Y.
Telephone Barclay 7-1770

RAILROAD FOR SALE

Industrial—24 inch track—21 lb. rail—8,000 lineal ft.—41 cars—4 ton Whitcomb Gasoline Locomotive. ADDRESS M. G. CONN, 141 W. 40TH STREET, NEW YORK, N. Y. (Telephone CH. 4-1560).

RELAYING RAILS

12#—exceptionally good quality — RAILROAD TIE PLATES for all size rails. All in good condition. For complete details, contact

SONKEN-GALAMBA CORP.
Kansas City 18, Kans.

Freight Car Prices REDUCED!

Now Only Half of Recent Peak Prices—
As Low As $500

14, Hopper, Twin, 50-Ton
50, Hopper, Side Discharge, 50-Ton
50, Refrigerator, 40-Ft., 40-Ton
50, Box, 40-Ft., 40-Ton
15, Box, Automobile, Steel, 50-Ft., 50-Ton
5, Flat, 40-Ft., 50-Ton; AB Brakes
2, Dump, Western, Automatic, 30-Yd., 50-Ton; Lift Doors
10, Dump, Magor, Automatic, 30-Yd., 50-Ton; Lift Doors
20, Dump, Koppel, Automatic, 20-Yd., 40-Ton; Lift Doors
3, Dump, Western, 20-Yd., 40 & 50-Ton
10, Tank, 8000-Gallon, 50-Ton

All cars are priced to sell!

IRON & STEEL PRODUCTS, INC.
40 years' experience
13486 S. Brainard Ave. Chicago 33, Illinois
"ANYTHING containing IRON or STEEL"

POSITION WANTED

A railway official for over twenty years, age under fifty, worked as superintendent, trainmaster, assistant to general superintendent, agent of large freight station wants permanent position with progressive railroad. Successful record in reducing costs in every position worked. Best of references from past employers. Can secure release. ADDRESS BOX 741, RAILWAY AGE, 105 WEST ADAMS STREET, CHICAGO, ILLINOIS.

FOR SALE
Immediate Delivery

Two (2) Type 0-6-0 Coal Burning saturated steam Baldwin Locomotives; built 1912; cylinders 19" x 24"; boiler pressure 180#; weight on drivers 120,000#; tractive effort 26,500#. Locomotives are in working condition and can be inspected at Lyons & Tchoupitoulas Streets, New Orleans, La.

Sealed bids will be received and publicly opened in the Board Room of the Public Belt Railroad Commission, 5th Floor, Municipal Building, New Orleans, La., on TUESDAY, MAY 15, 1945, at 3:00 P. M.

The Public Belt Railroad Commission reserves the right to reject any and all bids.

Address bid to Public Belt Railroad Commission, 5th Floor, Municipal Building, P. O. Box 1240, New Orleans 10, La., Attention: W. J. Germann, Secretary-Treasurer.

ATTENTION
Purchasing Agents

We are an old established drop forging plant confined strictly to war production, but now becoming available for general commercial drop forgings.

We will appreciate your inquiries.

BALDT ANCHOR, CHAIN & FORGE COMPANY
CHESTER, PA.

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment
Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
New York-Pittsburgh-St. Louis

WANTED

Mechanical draftsman with steam locomotive experience; able to make elevations and detail from them. Location near Chicago, good working conditions. Give full particulars in reply.

ADDRESS BOX 739
RAILWAY AGE
30 CHURCH STREET
NEW YORK 7, N. Y.

DON'T
WASTE
PAPER!

BUY

WAR BONDS

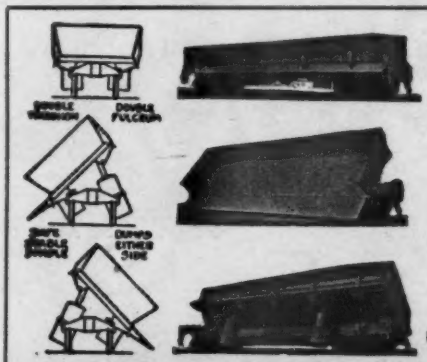
Nothing takes the place of Leather!

Said of the footwear of Wellington's soldiers in 1815—as of distinctive upholstery of today—"nothing takes the place of leather."

Luxury—the utter, rich luxuriousness of soft, pliant genuine leather cushions and trim adds the unquestioned note of distinction and sales appeal to modern lounge and club cars. There is no substitute for real leather in durability, modern smartness and lasting good taste. Samples of new colors and new tannage are now ready for post war railroad designers.

Blanchard Bro. AND Lane

408 FRELINGHUYSEN AVE., NEWARK 5, N. J.



AIR DUMP CARS

RAIL CARS
MINE CARS
AND
LOCOMOTIVES
AXLESS TRAINS

COMPLETE HAULAGE SYSTEMS

DIFFERENTIAL STEEL CAR CO.
FINDLAY, OHIO

FOR SALE

Used Locomotives, Cars, & Equipment of All Kinds

LARGE STOCKS OF RELAYING RAIL AND ACCESSORIES

COMPLETE RAILROADS
BOUGHT — SOLD — LIQUIDATED

DULIEN STEEL PRODUCTS, INC.
Organizations

of Washington
200 National Bldg.
Seattle 4, Wash.

of New York
2280 Woolworth Bldg.
New York 7, N. Y.

RAILROAD EQUIPMENT
CARS — LOCOMOTIVES
REPAIR PARTS

RELAYING RAILS

STEEL STORAGE TANKS
6000 — 8000 — 10000 gal. cap.
CLEANED AND TESTED

THE PURDY COMPANY
122 S. Michigan Avenue — Chicago 3, Illinois

GOLD
VAPOR-STEAM-ELECTRIC
CAR HEATING SPECIALTIES
GOLD CAR HEATING & LIGHTING CO
NEW YORK

Pittsburgh Spring & Steel Co.
1417 Farmers Bank Building, Pittsburgh, Pa.
Makers of Elliptic and Spiral **SPRINGS** of Every Description
Carbon, Vanadium, Silico-Manganese Steels
Licensed manufacturers under patents for "Coil-Elliptic" groupings
Washington, D. C. 824 Union Trust Bldg. — New York 3723 Grand Central Terminal — Chicago 1401 Fisher Bldg.

Index to Advertisers

May 12, 1945

A

Aluminum Company of America 19
American Arch Company, Inc. 45
American Brake Shoe Company 16, 17
American Creosoting Company, Incorporated 37
American Locomotive Company 6, 7
American Optical Company 13
American Steel Foundries 27
Armco Railroad Sales Co., Incorporated 30
Association of Manufacturers of Chilled Car Wheels 2
Automatic Electric Sales Corporation 38

B

Baldt Anchor Chain & Forge Company 56
Baldwin Locomotive Works, The 50, 51
Bethlehem Steel 3
Blanchard Bro. and Lane 57
Bowser, Inc. 28
Briggs & Stratton Corp. 54
Budd Manufacturing Co., Edward G. 14, 15, 22, 23

C

Carey Co., Inc., Thomas F. 56
Carnegie-Illinois Steel Corporation 4, 5
Caterpillar Tractor Co. 33
Classified Advertisements 56
Columbia Steel Company 4, 5
Conn, M. G. 56

D

Differential Steel Car Company 57
Dulien Steel Products, Inc. 57

E

Edison Storage Battery Division of Thomas A. Edison, Inc. 26
Electro-Motive Division, General Motors Corporation 46a, 46b

F

Fairbanks, Morse & Co. 29
Franklin Railway Supply Company, Inc. 43

G

General Electric Company 6, 7
General Railway Signal Company ..... Back Cover
General Steel Castings 35
Get Together Department 56
Gold Car Heating & Lighting Co. 57

H

Harbison-Walker Refractories Co. 45
Haskelite Manufacturing Corporation 32
Hunt Company, Robert W. 56
Hunt-Spiller Mfg. Corporation 48

I

International Nickel Company, Inc., The 24
Iron and Steel Products, Inc. 56

K

Koppers Company, Inc. 52

L

Lima Locomotive Works, The 44
Lincoln Electric Company, The 10, 11
Locomotive Firebox Company 31

N

National Malleable and Steel Castings Co. 42

O

Ohio Locomotive Crane Co. 56
Okonite Company, The 54

P

Pittsburgh Plate Glass Co. 55
Pittsburgh Spring & Steel Co. 57
Purdy Company, The 57

R

Railway Educational Bureau, The 56
Republic Steel Corporation 49
Reynolds Metal Co., Aluminum Division 8, 9

S

Schaefer Equipment Company 25
Sonken-Galamba Corp. 56
Standard of California 36
Superheater Company, The 46
Symington Gould Corporation, The 61

U

Union Asbestos and Rubber Co. 20, 21
Union Steel Castings Division of Blaw-Knox Co. 53
Union Switch & Signal Company 40
United States Rubber Company 34
United States Steel Export Company 4, 5

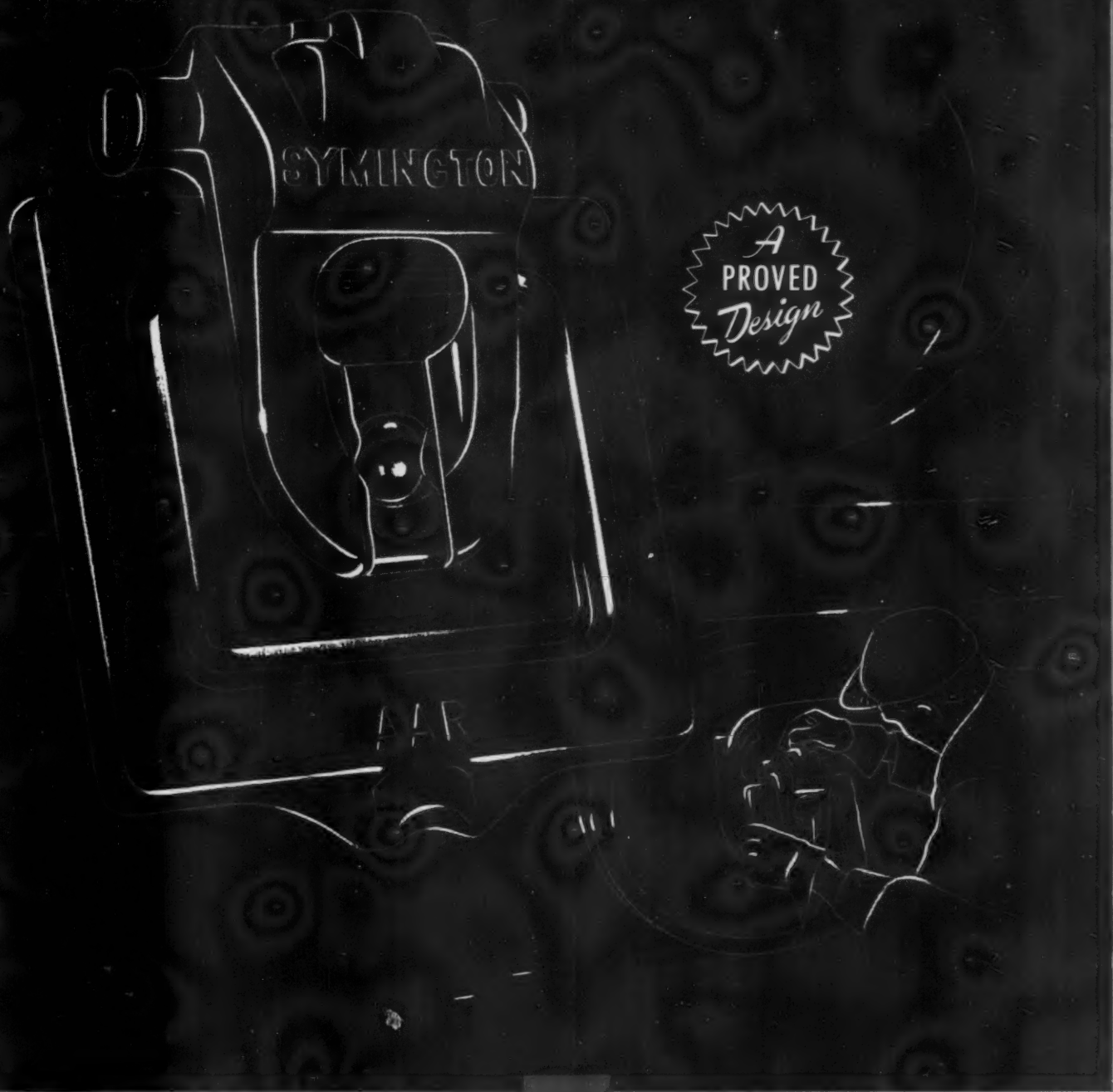
V

Viking Pump Company 54

W

Westinghouse Air Brake Co. 47
Wine Railway Appliance Co. ..... Front Cover

LOOK TO SYMINGTON-GOULD FOR DEPENDABLE PERFORMANCE



Symington Journal Box Lids are designed for quick and easy application. No special tools are required. Shipped ready to apply, installation takes less than a minute per lid. For Separate or Integral Journal Boxes.

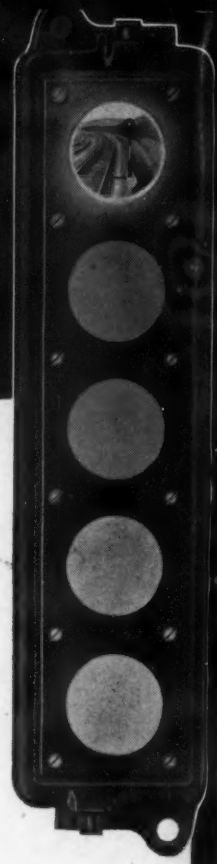
THE Lid (illustrated above) is the new, Improved Symington Composite Articulated Lid. It features (1) Light weight—yet sturdy (2) Tight joint (3) Center pressure (4) Full articulation. For full details write for Bulletin describing the B-265 Lid.

THE SYMINGTON-GOULD CORPORATION

Works: ROCHESTER & DEPEW, NEW YORK

New York • Chicago • St. Louis • Baltimore • Boston • San Francisco • In Canada: ADANAC SUPPLIES, LTD., Montreal, Que.

Increase your track capacity with...



G-R-S CAB SIGNALS

You can increase your freight and passenger traffic movements and maintain them on faster schedules without increasing maximum speeds.

G-R-S Cab Signals save time in two ways:

1. Abnormal weather conditions that contribute to the interruption of train schedules due to poor visibility have no effect on operation when the signal is in the cab of the locomotive.
2. With constant information instantaneously transmitted directly from the rails to notify the engineer both visibly and audibly of any and all changes of track conditions ahead, he is able to reduce or resume speed immediately upon notification and take advantage of many opportunities to maintain a more nearly even speed with complete safety.

These two advantages save time, save wear on equipment and increase your track capacities.

Have you considered what G-R-S Signals can do for your road?

GRS **GENERAL RAILWAY SIGNAL COMPANY** GRS

New York Chicago **Rochester 2, N.Y.** St Louis A-2060

"High
230,000
Americ
quarters
freight
lies a vit
prospe